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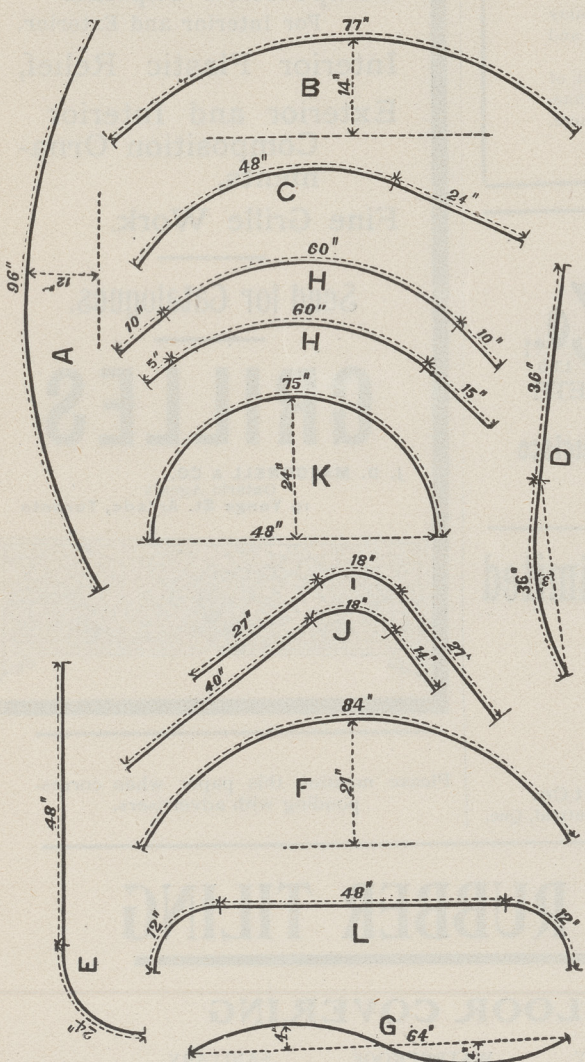
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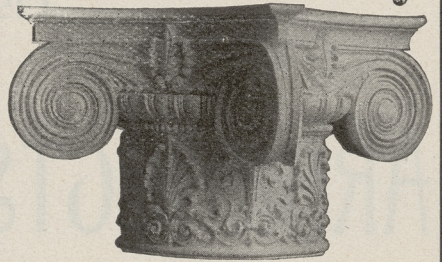
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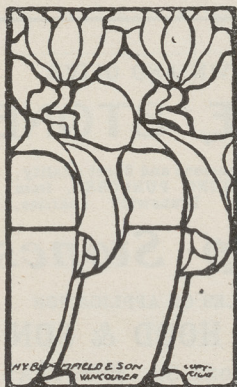
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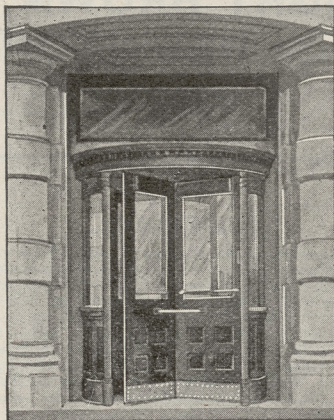
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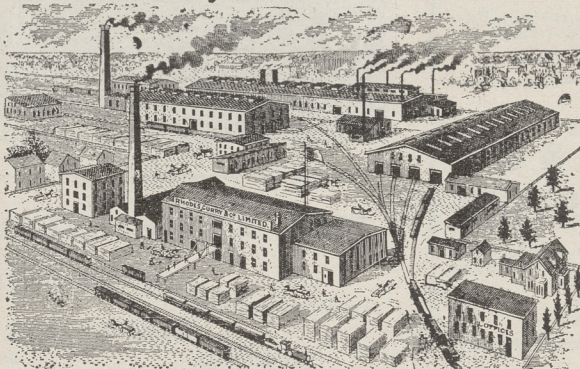
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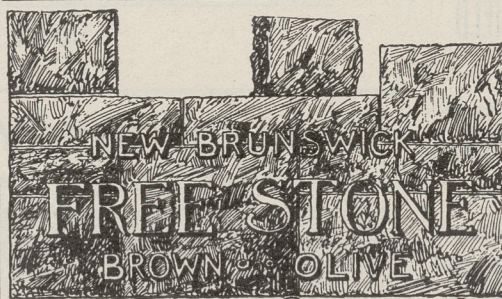
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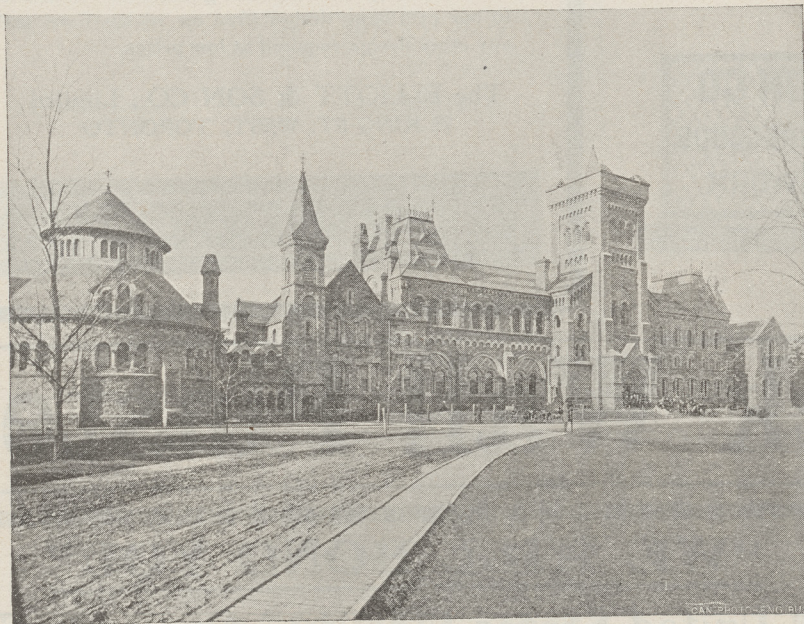
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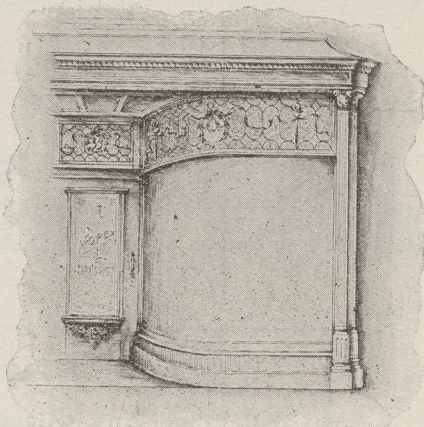
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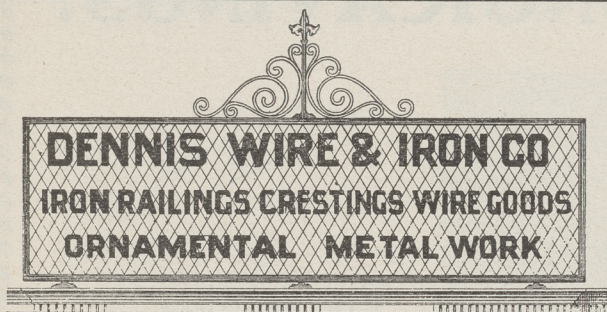
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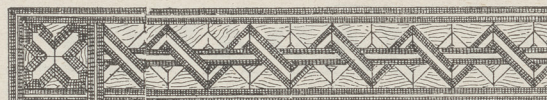
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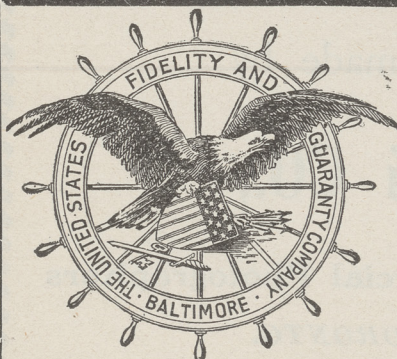
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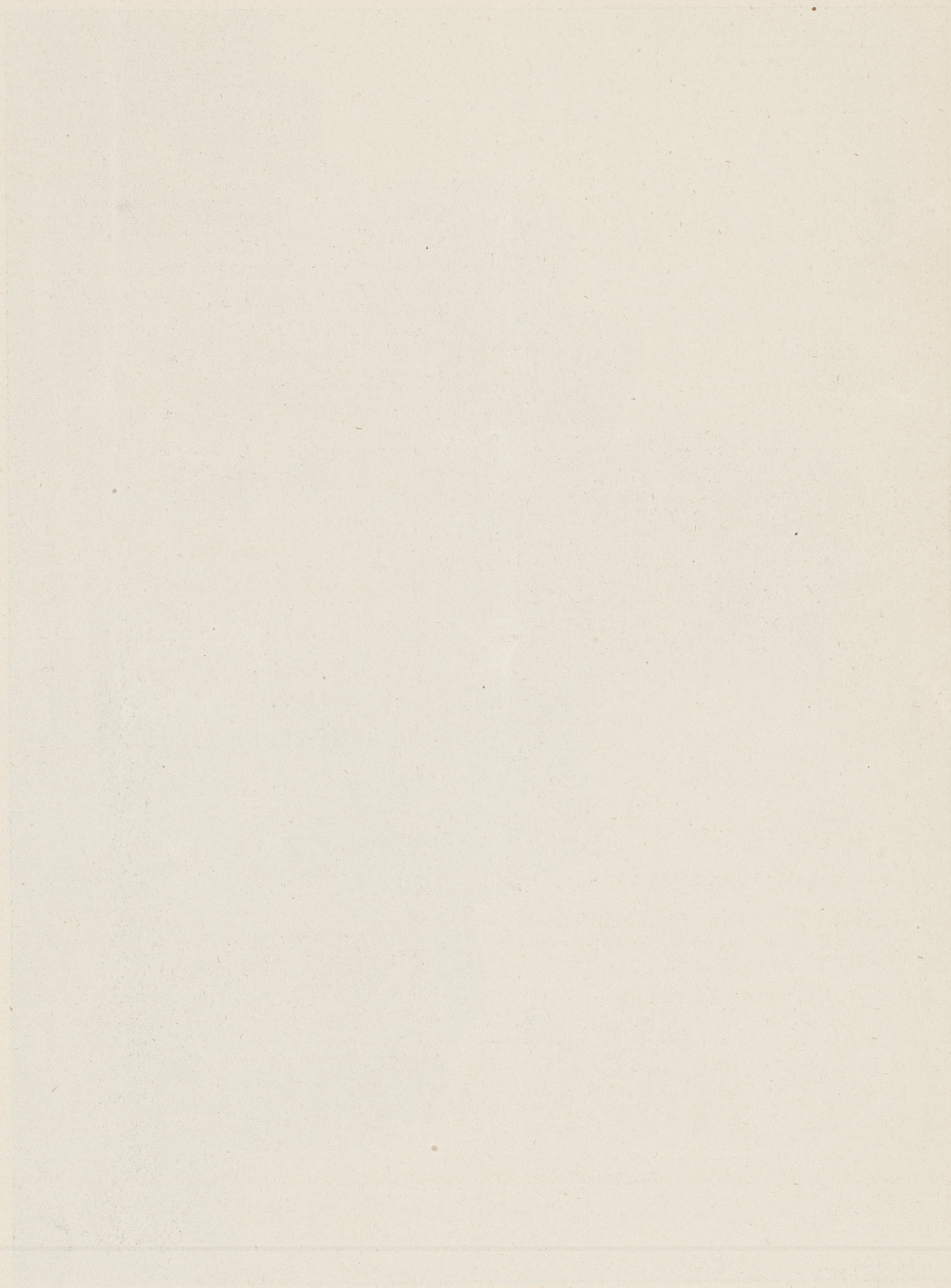


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JULY, 1903

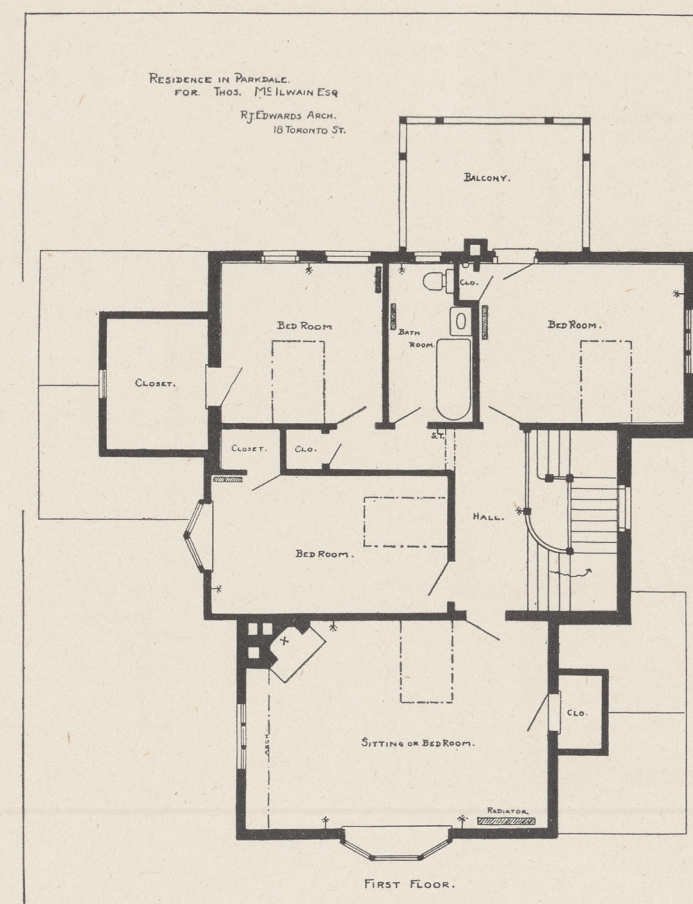
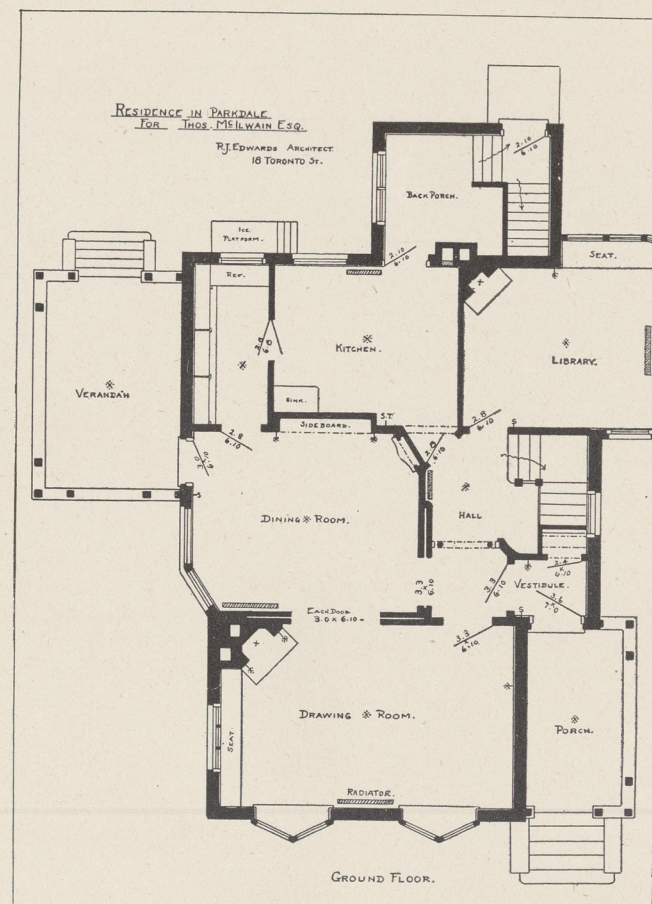
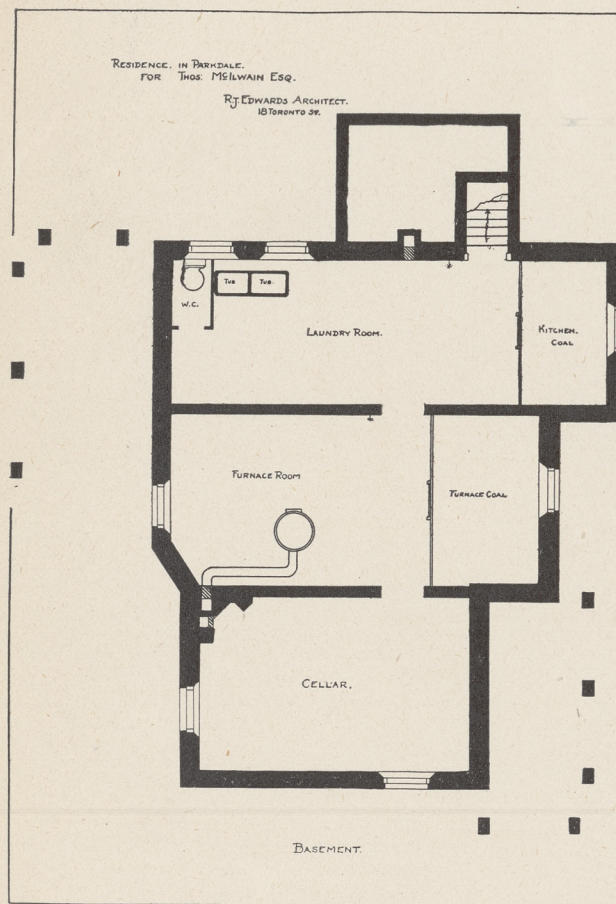
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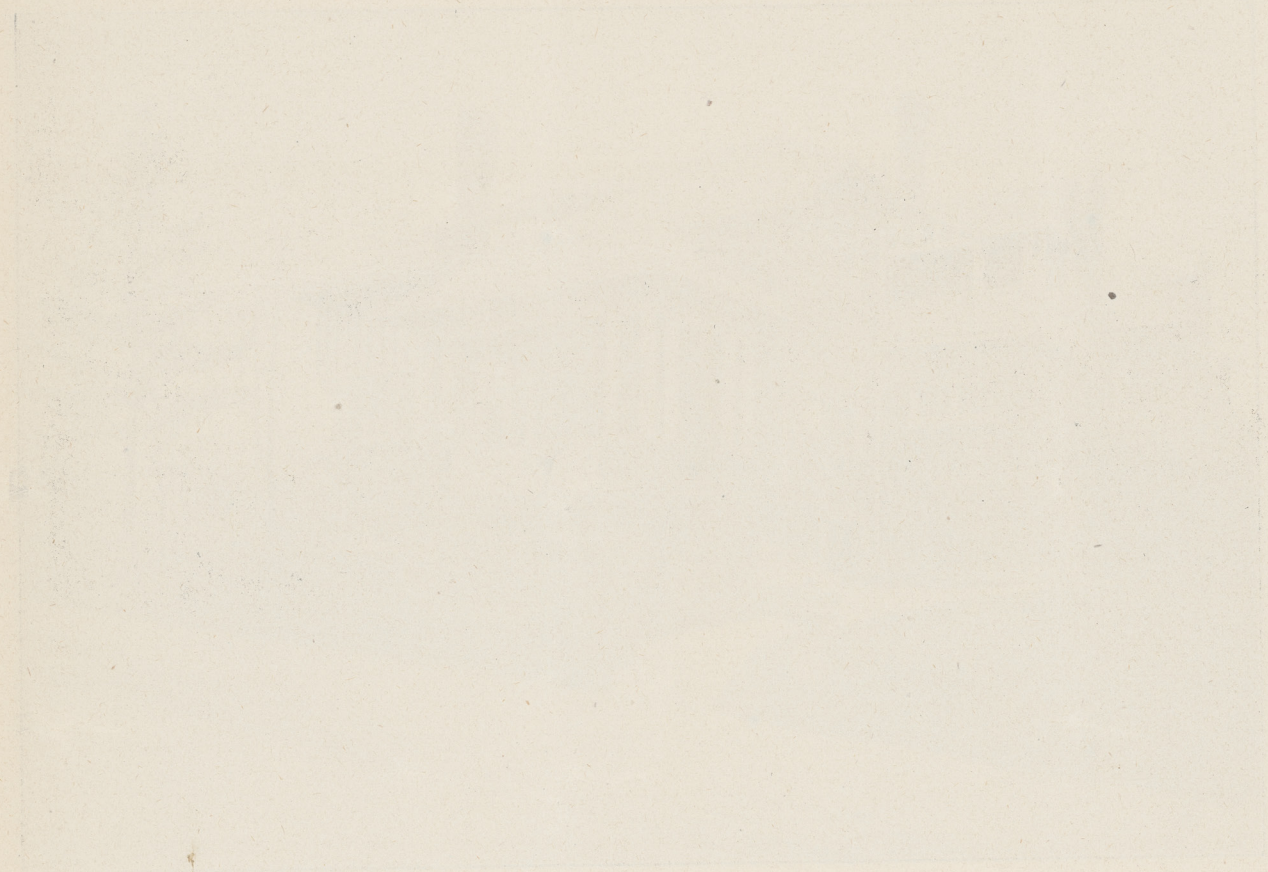














# The Canadian Architect and Builder

VOL. XVI.—No. 187.

JULY, 1903.

## ILLUSTRATIONS ON SHEETS.

Competitive Sketch for Presbyterian Church, Vancouver, B. C.—Arnold Woodroffe, A.R.I.B.A., and C. S. Wickender, Associate Architects.  
St. Stephen's Church, Winnipeg, Man.—S. Badgeley, Architect.  
House in Spencer Avenue, Parkdale, Toronto.—R. J. Edwards, Architect.

## ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

House in Cluny Avenue, Toronto.—S. H. Townsend, Architect.  
Statue in Queen's Park, Toronto, of John Graves Simcoe, First Governor of Upper Canada.—Walter S. Allward, Sculptor.

## ILLUSTRATIONS IN TEXT.

Views and Plans of Leighton House.

## CONTENTS

Editorial . . . . .	105-106	Intercommunication . . . . .	114-115
Notes on Travel.—II . . . . .	107	Something on Color Decoration . . . . .	116
By the Way . . . . .	108	Building Conditions in South Africa . . . . .	116
The National Association of Master Plumbers, Steam and Hot Water Fitters of Canada . . . . .	109	On Architectural Nomenclature . . . . .	117
Fallacious Cement Tests . . . . .	110	An Opportunity to be Improved . . . . .	117
Building Materials at the London Building Trades Ex- hibition . . . . .	111-112-113	Correction . . . . .	117
		The Building Strike in Toronto . . . . .	119
		American League for Civic Improvements . . . . .	120

## SPECIAL CONTRIBUTORS.

PROF. S. H. CAPPER, R.C.A., Department of Architecture, McGill University, Montreal  
MR. W. A. LANGTON, Architect, Toronto.  
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" J. C. B. HORWOOD, Architect, Toronto.  
" A. F. DUNLOP, R.C.A., Architect, Montreal.  
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### Large Scale Parqueterie.

It is usual in England to floor the passages of a church with stone or tiles and the seating areas with wood, in the form of herring bone flooring, composed of pieces of unfinished wood about 4"x18." The size of the pieces is the principal part of the excellent appearance of this kind of flooring and the fibrous appearance of the unfinished surface is the rest. It is suggestive also, from the ease with which it can be repaired in parts, of suitability for a building where the flooring may be worn out in some spots sooner than in others.

### Walls.

There is nothing in the way of railing so satisfactory as the stone baluster. The difficulty about it is its cost, for in order to give it its proper effect it must be used in stretches of some length. In London where, if there are, as it is said, 3,000 miles of streets there must be at least 300 of garden walling; a cement baluster and rails are extensively used on the top of a low brick wall plastered with cement. The effect redeems a very plain street from dullness, is not unmanageably expensive, and yet does not look cheap. One never sees a fence of this kind in a state of deterioration, so that there is no reason to suppose it is

not durable; indeed the evidence of other work in the same material would go to promise a durability as great as that of stone. Sometimes the baluster and rails are of terra cotta. Both are apt to appear alike in time, because of the London leases which exact repainting every three years.

### Insurance Against Strikes.

It is stated on authority of the President of the National Manufacturers' Association of the United States that a Mutual Company is to be formed with the effect of insuring employers of labor against losses occasioned by strikes. The company will also aim to protect independent workmen, by establishing a legal department and prosecuting persons who may attempt coercion or violate the law. It is proposed to keep secret the names of the members, so that when a strike is instituted it will not be known whether the fight is to be with an individual employer or a powerful organization of the character described. There is a movement all along the line to curb the powers of the unions to demoralize business and restrict the freedom of employers to employ whom they please and of workmen to sell their labor to whom and at whatever price they may choose. The general public are a unit with



the employers of labor in demanding that means shall be found to prevent the continued disturbance of commercial conditions and interference with individual rights. Legislation with this object has recently been introduced and is now being considered by the Parliament of Canada.

#### Building Restrictions.

As the result of a recent attempt to establish a factory in the centre of a choice residential section of Montreal, Alderman Vallieres has announced his intention to introduce a by-law defining the limits within which factories may not be erected. Such a regulation should be in force in every city, and ought properly to be incorporated in the building by-laws. There should also be a clear cut provision compelling property owners to keep their buildings back a certain distance from the street line. Numerous cases might be cited in which for want of such regulations heavy losses have been suffered by property owners in residential districts. It should not be possible for a factory, a livery stable or even the back premises of an apartment house to abut against residential property, nor for the house owner to build a porch or other projection so near the street line as to deprive his neighbor whose house is properly placed of the view up or down the street to which he is entitled. It is to be hoped that if the Toronto building by-laws supposed to be now in process of revision, ever reach completion, they will contain a clause which will properly regulate these important matters.

#### Old Mantles.

There is in England a trade in old mantels. When old houses are broken up, these, and no doubt other fragments of detail, are collected by dealers and sold for incorporation in modern work. The paint is cleaned off thoroughly, and in that state it can be seen exactly in what condition the work is. A correspondent in London who has been examining some of the stock at the warehouse of Thos. Hall, 25 Great Portland street, London, W., suggests that some of these mantels ought to be imported into Canada. The price ranges from about \$30 to about \$60. At that price they are cheap; and, with cost of importation added, would be still worth while for those who can afford to pay for a good thing. Though old, the mantels that are offered for sale are not shabby. They are usually of good design, which was the origin of their preservation, and are fully ornamented; and, whether because there is a softening effect of age or that the work is hand work, the ornament is more pleasing than in new productions of the same model. It would be possible for a purchaser to get sufficient description or illustration of some of these mantels to make up his mind as to their suitability.

#### Peasant Art.

There was recently held, at the Albert Hall in London, an exhibition of Home Arts and Industries, the annual work of a society which exists to foster the production of various forms of art in the leisure hours of working people. When the movement first began there was a tendency to claptrap: hammered brass and other forms of unmistakeable hand production, valued more for the evidence of handwork—what

is known as "the loving marks of the hammer"—than for any real beauty. Now, however, there are some excellent productions in the way of homespun cloth and other textiles, lace, tapestry, pottery, cabinet making and wood carving. All these are good and useful productions; the country is better off and the people who make them are no doubt better off, both mentally and in pocket, for their production. But the interesting thing for a bystander is to observe that there is not a trace perceptible of variation from the ordinary types of similar work produced in the ordinary way. The cloth is simply good cloth; the lace is, to the eye of a male man, like other lace; the tapestry might have been designed, and perhaps was designed, by some one of the school of Burne Jones; the cabinet making might come from Grand Rapids, Mich.; the wood carving is as imitative of old work as is the best architect's; the pottery alone and some of the metal work had a noticeable note of freshness.

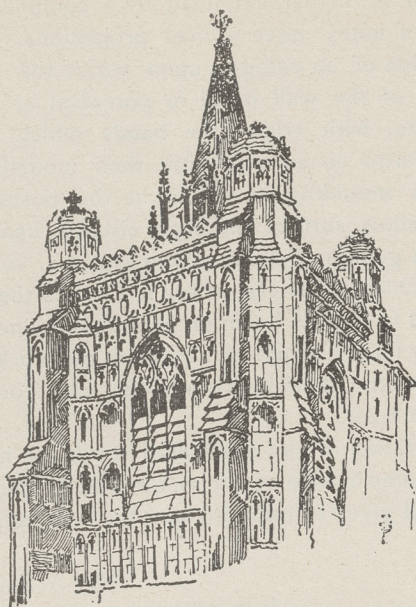
#### London Leases

The tenant in London assumes risks which would be declined in any other town. Houses are let under what is called a "repairing lease." "Reasonable wear and tear," which are excepted, in our leases, from the tenant's responsibility, are what, in London, the tenant has especially to make good. In other words the preservation of a man's property from the deteriorating effects of time depends not upon his own exertions but upon exertions which he exacts from the temporary occupant. The consequence is that there is always a floating valuation going on outside of the lease. An incoming tenant may have three money questions to consider: The rent, the repairs the landlord requires before he will give possession, and a premium to be paid the outgoing tenant for improvements effected by him—this latter in the case of taking up an unfinished lease, which often happens, for leases taken under these conditions are usually taken for as long as possible and are often transferred while still running. On the other hand, before a tenant quits possession, an inquisition is made by the agent of the landlord to see if the tenant is leaving the property in the condition in which it ought to be left; if not, an estimate is made of the necessary repairs, the sum is extracted from the outgoing and handed to the incoming tenant. It is probable that it would be more exact to say that the sum is allowed the incoming tenant and extracted from the outgoing tenant if possible.

One effect of shifting repairs from the owner to the tenant is that, even when a row of houses remains entirely in the hands of one proprietor, the repainting of the different houses is done at different times and a row is effectually relieved of monotony. The repetition of the original tint (usually a very light colour) in different degrees of freshness is rather an improvement to the look of the row, having all the pleasing effect of cloud shadows on a range of hills.

The most serious result to the tenant, of such a lease, is that the consequences of undermined foundations, earthquakes, windstorms, etc., fall on the tenant, who does not therefore feel in a sound position unless he has capital, beyond his needs, practically sufficient to rebuild the house.





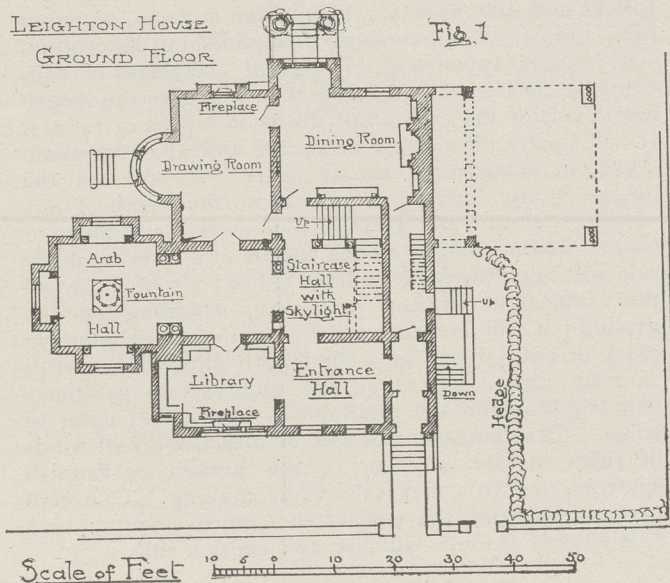
TOWER OF ST. PETER MANCROFT, NORWICH.  
G. E. STREET, ARCHITECT.

## NOTES ON TRAVEL.—II.

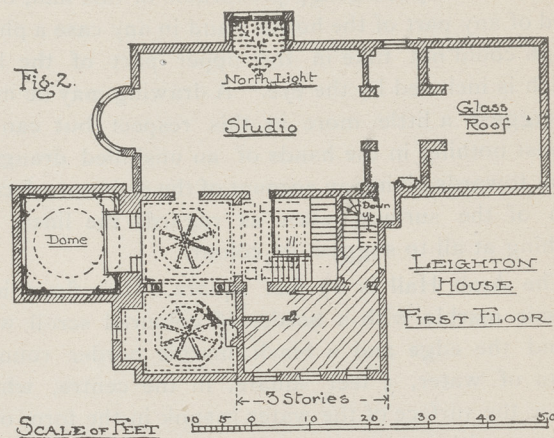
### LEIGHTON HOUSE.

Lord Leighton's house has been procured for the public by subscribers; and, under the management of a committee is open to the public. The floors are properly covered and there is a good deal of furniture but no knick-knackery. The walls are covered with chalk and pencil studies for his various paintings. These were also procured by the committee from Lord Leighton's heirs and elsewhere. They are well arranged in groups as pendants to a photograph of the painting which resulted from them, and form a valuable series of lessons in design for artists. But the house itself is the object of this study.

The house is designed for the interior. The exterior is not composed for display and would have little chance of being seen if it were. It is in the middle of Holland Park Lane, which is in reality a stable lane about 33 feet wide, with a cobbler's shop on one side of the entrance to it and the back of a livery stable on the other; one good house next to Lord Leighton's but retired in its grounds; a row of cottages opposite, two of which, as their signs declare, are inhabited by a clear starcher and a carpet sweeper; the rest of the lane occupied by studios of a modest kind, some of which are converted stables, and by stables which are still unconverted and in the gall of bitterness.

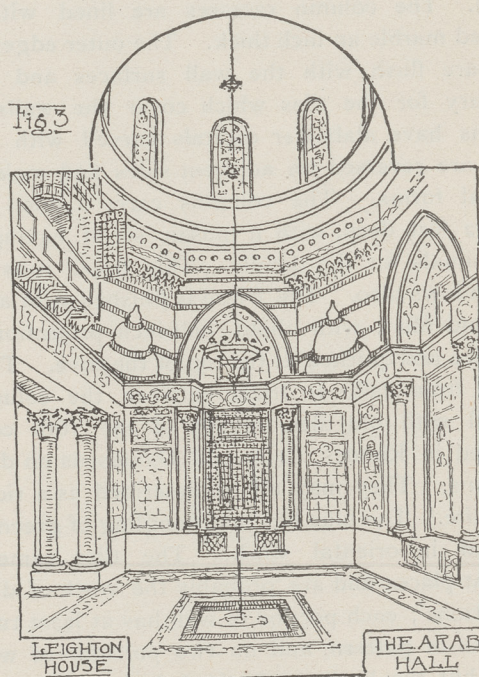


Once in the house there is no occasion to think of the approach, which is indeed partly justified already by its quietness. In London it is only necessary to be one remove from the traffic of a main artery in order to be quiet. There is no roaring trolley or ringing asphalt; the pavement is of square wooden blocks on concrete, and the intervention of a garden is enough to make its soft roar sufficiently remote. The front of Leighton House is desirably quiet and the rooms looking upon the garden behind, upon the north side of the house, are a model of peace and dignity.



The house is distinctly a house for entertainment. Lord Leighton was unmarried and lived alone. His bed room was in the shaded portion of the upper floor. This area is now set apart for the office of the honorary secretary of the committee and is not open to the public, but, from its shape and the arrangement of the doors it seems probable that the bedroom was the larger square to the east and that the smaller square beside it was a dressing room or bathroom.

The kitchen was in the basement, as is usual in London, and the servant's bedrooms on the third floor, over Lord Leighton's own bed room.



The special feature of the house is the Arab Hall. It is of course an exotic: the latticed windows are not needed to exclude the already subdued light of London, nor is the air so parched that a fountain is a first consideration for luxury; but, like many other exotics, it has a special charm from being a remove from the



ordinary. The real charm is however its perfection, the work, at the bottom, of the architect, Mr. Arichison. It is the proportion and balance of the design which are the real base of the beauty which the enamelled oriental tiles decorate; but, together, they make a piece of work which seems to lack nothing of perfection. To sit in one of the wide window seats and let the eye rest on the harmony of the design while the ear enjoys the music of the fountain echoing in the dome is to enjoy perhaps as distinct pleasure as mere architecture can give.

There is no photograph procurable of this hall, or indeed of any part of the house; and in any case a photograph could not take in the upper part of the hall, which is included by the eye. A drawing may be made to suggest a little more in this respect but can do almost nothing in the hands of an unskilled draughtsman, towards giving an account of the elaborate decoration of the surface, even as regards the lines, and nothing at all to suggest its colour.

The Arab Hall is 17 feet square. The floor is of mosaic marble with a border of coloured scroll work round the edge and a black marble border round a basin of water, 5 feet square, in the centre, which, below the surface of the water is sunk in the form of an octagon with angles centered on the sides of the basin, and a semicircular sinking springing from each side of the octagon and about half a side in diameter. A pipe nozzle, projecting above the surface of the water, at the centre, sends up a stream, of about 1/16 inch in diameter, about 3 feet high. This falls back into the basin with a musical sound to which the echoing character of the hall largely contributes. The walls have a black marble dado up to the window sills, 2' 6" high. The windows are covered by lattices of Mash-arabeeyeh work. The window bays are 9 feet wide by three feet deep, with angle columns of white marble (incorrectly shown in the plan as projecting into the recess). The column recesses are lined with light coloured marble an inch thick. The outer edges of the slabs are flush with the wall surfaces and form a boundary for the tiles which cover the walls. The columns have alabaster capitals carved with storks, which are reversed on adjacent sides and make symmetrical forms. The columns carry a flush frieze, about 2 feet deep, with a mosaic scroll, having birds and animals for the details. This frieze runs across the windows also. The frieze is finished with a 6 inch cove and fillet, with about half-inch projection from the frieze and quirked at the top of the cove. The wall spaces from dado to frieze between the columns is covered with old tiles, mostly of the 16th century, procured in Rhodes, Cairo and Damascus on different occasions. They may all be described as a rich blue and white. The blue has that mingling of green which is usual in oriental work. The tiles came from different places and are probably the work of different generations; each portion of wall has at least two subdivisions of pattern, and no two portions of wall are alike; but the harmony both of design and colour is perfect. The windows have pointed arches faced with dark marble, moulded: the soffits are mosaic, similar to the frieze. From the frieze spring squinches, if they can be so called, like inverse and inverted pendentives, with a delicate outline of many curves which carry a truncation of the hall with great neatness. The

truncation is further extended by a complicated Arab cornice, of many ogee arched projections, until they become side of an octagon upon which the dome sits. This part of the wall is all in porcelain or enamelled tile; white, with wide blue bands which cross the squinch forms so as to exhibit their modelling. The dome has moulding in colour at the bottom, a dull gold or yellow surface and eight circular headed lights filled with genuine Persian coloured glass, very deep in colour. Over the frieze where it crosses the entrance to the hall (a marble beam on columns) is one of those projecting lattice windows, a piece of old work, brought from the east. This looks into the hall from the hall in the first floor.

A description of the Arab Hall would be incomplete without some notice of the value which the unlighted middle hall gives to both this and the well lighted staircase.

W. A. LANGTON.

(To be continued.)

#### BY THE WAY.

The field is already so full of specialists and so-called experts that the functions which ought to belong to and discharged by the architect, are becoming less and less clearly defined. Yet there is apparently a disposition to specialize still further. The recommendation has recently been made that service of the "lighting engineer" should be procured to determine the character and location of lighting fixtures which should be employed in a building, their effect upon the decorations, color of light to harmonize with fittings, disposition of occupants of rooms and character of employment therein, expense of installation and maintenance, burners available and supplies or repairs for the same, etc., etc. Now if the architect who plans a general scheme be not competent to deal with the details thereof, it seems to me he had better abdicate entirely, and hand over the whole business to the "specialists." Within proper limits the latter are doubtless a distinct aid to the architect, but if success is to crown the work, there must not only be expert knowledge in the various departments, but also a master mind to plan, supervise and harmonize the whole undertaking.

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According to the Meriden Journal, M. M. Jones, (nothing extraordinary about the name) an architect of that city, has invented a measuring rule that may almost be said to be capable of measuring anything, anywhere, and of any size, beneath the skies. He (Mr. Jones) says the Journal: Has taken a cheap, common rule, and, without increasing or diminishing its original size, weight, appearance or original usefulness or convenience, has produced a rule that will give the length and levels of the ends of all kinds of braces or rafters. It will square off a board or square and lay out a cellar, make an octagon or square mitre. It will tell the height of any building or elevation, the depth of any valley or chasm, the width of any street or stream, or both. Anchor a boat in the middle of a river, and the rule will tell how far it is from shore; a roofer can tell the dimensions of any roof while standing on the ground; it will measure anything in sight, whether in reach or not; it will give the length of any straight or slanting line, it solves all the problems in geometry and trigonometry the mechanic is ever called upon to solve. The improvement can be attached to all kinds of rules in use, whether of the French or English systems, and to a new rule while making. One cent per rule will pay the cost of the improvements; to a rule already made it will cost two cents a rule.





### THE NATIONAL ASSOCIATION OF MASTER PLUMBERS, STEAM AND HOT WATER FITTERS OF CANADA.

The eighth annual convention of the above Association opened in Forester's Hall, 505 Craig Street, Montreal, on the 2nd of July, The President, Mr. F. Powers, presiding. The president in his annual address stated that the relations of the master plumbers with the manufacturers and supply firms were of a friendly, and on the whole, satisfactory character. The membership of the Provincial Associations was steadily increasing. New associations have been organized during the year at Sydney, and on the Island of Cape Breton. Attention was called to the necessity for the appointment of a permanent secretary and organizer to be paid a salary sufficient to enable him to devote his whole time to organizing and association business. Owing to the shortening of credits to 30 days by the manufacturing and supply firms, it was recommended that the plumbers also curtail credits to thirty days.

The report of Mr. Peter C. Ogilvie, vice-president, contained the following suggestion: "I think that in the interest of every one, no contractor should make a contract with any labor union, until such time as they become incorporated bodies. As it is now, a contract is only kept until such time as it suits them best to break it; I sincerely hope that we will be able to get some practical suggestions from some of those present at this convention."

Mr. W. H. Meredith, vice-president for Ontario, urged the importance of organizing associations for every province, and as a proof of the advantage of so doing, referred to the fact that all the principal towns and cities in Ontario now had local associations, and that in Toronto 95 per cent. of the master plumbers are members of the local association.

Mr. James Farquhar, vice-president for Nova Scotia, referred to the fact that the Board of Health at Halifax is very strict in the enforcement of sanitary regulations, and that there is co-operation between the Board and the local plumbers' association in behalf of the enforcement of sanitary laws.

The President of the Montreal Association, Mr. T. O'Connell, referred in his report to the good feeling existing between the Master Plumbers' Association of Montreal, and the local Journeymen's Union. Reference was also made to the fact that the city plumbing by-law has been amended in several important particulars, one of which was that journeymen have now to undergo examination.

George A. Perrier, secretary, in his report also referred to the necessity for the appointment of a paid secretary who should reside at a central point, and be in a position to have at all times a thorough grasp of the affairs of the Association.

The President called attention to an Act passed by the Legislature of the State of New York and which is now in operation, having reference to government and municipal contracts. This Act had been revised with a view to its presentation to the Dominion government for adoption, and is as follows:

The people of the Dominion of Canada represented, do enact as follows:

Section 1. All specifications or contracts hereafter made or awarded by the Dominion, or by any public department or official thereof, for the erection and construction of buildings, shall be understood to embrace stone and mason work, carpenter work, painting and decorating work, plumbing, heating, electrical work, structural iron work, and roofing.

Section 2. The officer, board or commission charged with the duty of drawing specifications and contracts for the erection and construction of buildings for the Dominion, or any political or other sub-division of the Dominion, must draw separate specifications and contracts to cover the separate kinds of work referred to in Section 1 of this act, and they must be so drawn as to permit of unfettered bidding for and upon the separate branches of work to be performed.

Section 3. All contracts hereafter made or awarded by the Dominion, or public department or official thereof, for the erection and construction of buildings, are to be awarded separately upon the separate branches of work, as referred to in Section 1 of this act, to responsible and reliable individuals, firms and corporations engaged in the business of the kind to which the work to be performed belongs.

Section 4. No bid shall be received or accepted by the Dominion or any public department or official thereof, unless the party making the bid shows by affidavit that he is a citizen of the Dominion of Canada, and as a test of his fitness to properly perform the work bid for, that he has served an apprenticeship of at least three years at the line of work specified in his bid, or that he is a contractor in the particular line, and has had at least five years' practical experience.

Section 5. If any person, firm or corporation, to whom any contract is hereafter let, granted or awarded, by the Dominion or by any public department or official thereof, shall, without the previous written consent specified in Section 5 of this act, assign, transfer, sublet or otherwise dispose of the same, or any right, title or interest therein, to any other person, firm or corporation, the Dominion, public department or official thereof, as the case may be, shall be relieved and discharged from any and all liability and obligations growing out of said contract, and to the persons, firm, or corporation to whom he shall assign, transfer or sublet, or otherwise dispose of any right, title or interest in the same, and said contractor, and his assignee, transferee, or sub-lessee shall forfeit and lose all moneys theretofore earned under said contract, except so much as may be required, to pay his employees, provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by such contractor for the benefit of his creditors, made pursuant to the Statutes of the Dominion.

Section 6. All acts and parts of acts inconsistent with this act are hereby repealed.

Section 7. This act shall take effect immediately.

The proposed measure met with general approval, and a committee consisting of the President, past-president McKinley and the treasurer, Mr. Lamarche, was appointed to interview the Minister of Public Works



and the Ministers of all spending departments of the Government and urge upon them and upon the Government the adoption of this measure during the present session of Parliament.

The action of the manufacturers of soil pipe and fittings in deciding to discontinue, after the 1st of January next, the sale of light soil pipe and fittings, was endorsed.

The Committee on Resolutions suggested that clause 1 of the President's report be amended to read as follows: "That it be a recommendation from the National Association, that any agreement which local associations may make with the journeymen, should be ratified by the International Association of Journeymen Plumbers." On recommendation of the committee the other reports were adopted. The committee recommended that the revenue of the Association be enlarged by an increased per capita tax, thus placing sufficient funds at the disposal of the officers of the Association to properly prosecute the work.

The Executive Committee were instructed to place themselves in communication with the National Association of the United States to learn if it would be agreeable to that organization to have a representative of the Canadian Association attend its next annual meeting and to reciprocate by sending a representative to future annual conventions of the Canadian Association.

It was decided by vote that the next convention of the Association should be held in Toronto commencing on Wednesday, July 20th, 1904.

The following officers were elected for the ensuing year: President, Joseph Thibeault, Montreal; Vice-President, Robert Ross, Toronto; Secretary, H. A. Knox, Ottawa; Treasurer, F. G. Johnson, Ottawa. Provincial Vice-Presidents: British Columbia, John McKinley, Ottawa; Manitoba, A. J. Hammond, Winnipeg; Ontario, H. Mahoney, Guelph; Quebec, Joseph Lamarche, Montreal; New Brunswick, W. Watson, Moncton; Nova Scotia, Geo. Kinsman, Halifax. Chairmen Standing Committees: Legislation, E. B. Butterworth, Ottawa; Apprenticeship, G. A. Perrier, Halifax; Sanitary, James Hughes, Montreal; Essay, John Watson, Montreal.

A conference was held with representatives of a number of manufacturing and supply firms, when trade relations were considered. The plumbers pointed out the desirability of a Dominion organization of manufacturers and dealers in plumbers' supplies, so that trade differences might more easily be discussed and remedied. At a subsequent meeting of the manufacturers and supply firms it was decided to form such an organization.

A very enjoyable evening was spent in connection with the Annual Association Dinner held at the Windsor Hotel. In the unavoidable absence of Mr. Thomas O'Connell, President of the Montreal Association, the chair was occupied by Mr. Lamarche, having on his right the President of the Association and on his left Mr. J. S. Archibald, Vice-president of the Province of Quebec Association of Architects. The toast of "The National Association" followed the toast to "The King." It was proposed by Mr. P. C. Ogilvie, and responded to by the President, Mr. Powers. The President of the Toronto Association, Mr. R. Ross, proposed the toast to "The Montreal Association." Messrs. Joseph Laurier and Mr. Lamarche made suit-

able replies. Mr. W. H. Meredith proposed the toast to the "Invited Guests," which he said included the architect, the manufacturer and the journeyman. Mr. Mr. J. S. Archibald, Vice-President of the Province of Quebec Association of Architects, extended the hearty felicitations of that organization to the Master Plumbers' Association, and congratulated the latter upon the scope and usefulness of its work. Replies were also made by Mr. Howard, President of the Journeymen's Association, F. J. Travers, Peter McMichael, S. R. Brewer, A. D. McArthur, Alex. Robertson and J. L. F. Carron on behalf of the manufacturers. The toast of "The Ladies" was proposed in felicitous terms by Mr. Fred. Armstrong, of Toronto, and replied to by Mr. Harry Mahoney, of Guelph.

#### FALLACIOUS CEMENT TESTS.

Mr. D. B. Butler, Vice-President of the Society of Engineers of Great Britain recently read a paper before that body on the above subject, in which he referred to the uselessness of many of the tests now employed. In conclusion he stated that whilst recognizing the fact that exceptional circumstances require exceptional qualities of cement, he submitted the following standard specification as one which would ensure the delivery of a good sound cement suitable for the requirements of general engineering constructional work.

The whole of the cement shall be pure Portland cement, and shall conform to the following tests:

**FINESS OF GRINDING.**—To be such that when sifted through a standard sieve having 50 holes per lineal inch there shall not be more than one-half ( $\frac{1}{2}$  per cent.) by weight of residue; when sifted through a sieve having 76 holes per lineal inch, there shall not be more than five (5 per cent.) of residue; and when sifted through a sieve having 100 holes per lineal inch, there shall not be more than 12 (12 per cent) of residue.

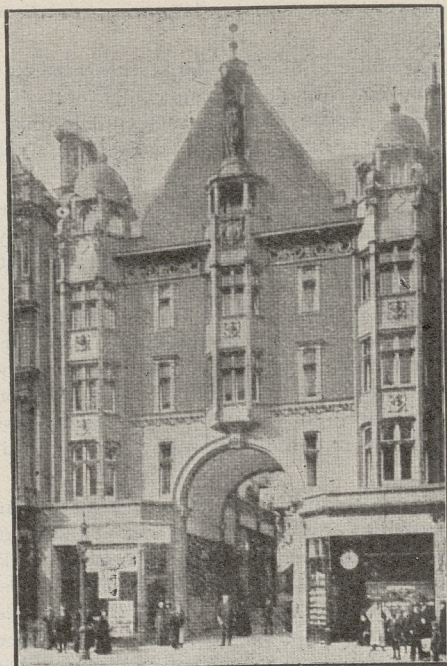
**TIME OF SET.**—A pat of neat cement gauged with the minimum of water at the normal temperature (60 deg. F.), and placed on a glass or other non-porous slab, shall not commence to set in less than eight minutes, or take longer than five hours to set hard.

**SOUNDNESS, OR FREEDOM FROM EXPANSION AND CONTRACTION.**—A pat submitted to moist heat and warm water in the Fajja apparatus for soundness at the usual temperatures—viz., 110deg. F. and 120deg. F. respectively, shall show no cracks or signs of expansion after 24 hours.

**TENSILE STRENGTH.**—Briquettes of neat cement, gauged with the minimum of water on a non-porous bed and placed in water 24 hours after gauging, shall carry an average tensile strain of not less than 350 lb. per square inch after three days, 450 lb. after seven days, and 550 lb. after 28 days from the time of gauging. Briquettes composed of three parts of standard sand to one part of cement by weight, treated as above, shall carry an average tensile strain of not less than 150 lb. per square inch at seven days and 250 lb. at 28 days from the time of gauging; but no matter how much greater strength may be developed at the earlier dates, both neat and sand briquettes must develop an increase of at least 50 lb. between each date.

Building operations in Vancouver, B. C., have been retarded by a strike for an 8 hour day of workmen in the sash and door factories.



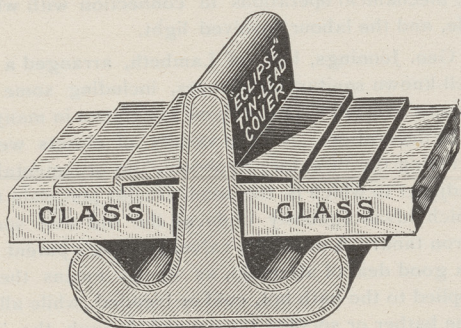


NEW STREET ENTRANCE TO CITY ARCADES, BIRMINGHAM.

### BUILDING MATERIALS AT THE LONDON BUILDING TRADES EXHIBITION.

Our representative in charge of our British office, 22 Great St. Helens, London, E.C., has sent us particulars of some of the exhibits of building materials and appliances shown at the Building Trades Exhibition held in London last month. Out of the large number of exhibits have been selected for mention those which were thought to be adapted for use in Canada and which might therefore be supposed to have an interest for the readers of this Journal. In interviews with the firms whose exhibits are mentioned below, our representative learned that it is their desire to obtain suitable agents in Canada with whose assistance they might be enabled to place their goods on the Canadian market and make their merits known in this country. The firms in question are of first-class standing, and manufacturers' agents in this country would do well to open correspondence with them. By so doing, either direct or through our London office, they would be assisting the present movement for closer trade relations with Great Britain and at the same time would no doubt establish for themselves profitable business connections.

Mellowes & Company, Limited, Corporation street, Sheffield.—This exhibit consists of a wooden structure entirely glazed on Mellowes' patent "Eclipse" system. The bars which support the glass consist of a steel bar entirely encased in a tin lead cover,



having webs on either side, which are rubbed down on to the glass (see sketch). Contraction and expansion are amply allowed for. No paint or asbestos is required, and no maintenance is necessary. It was learned that the glazing has been in use for 22 years, and is absolutely waterproof.

The Newellite Glass Tile Company, Limited, 139 Cannon street, London, E. C., exhibited their glass tiles, a perfect wall lining, with a clean impervious surface, unaffected by frost or weather, and absolutely free from the defect known as surface cracking or crazing. The nature of the key is a matter of the greatest moment, and if the tile is to be relied on, this key must be elastic, because the glass expands and contracts much more than the cement on which it is fixed. They claim the key of the "Newellite" Tile is of this elastic nature, enabling the glass to yield to the action of the cement to which it is affixed, while at the same time most firmly secured. The company are prepared to accept orders under the most exacting guarantee of durability, or on contracts of approved magnitude they will agree to a 10 per cent. retention for a period of two years from the completion of the work.

The stone exhibited by Messrs. Mackay & Davies, Cardiff, is known as the Blue Pennant. It is of a deep blue color and well adapted to all kinds of engineering, architectural, and surveyors' work on account of its even grain, exceptional solidity and great resistance to crushing. As regards weathering properties, it is very hard and durable and is largely used and highly spoken of for curbing, channelling and paving purposes. It can be supplied in large blocks sawn for steps, landings, sills, etc. The specific purity of the stone is 2.68 and percentage of water absorbed after 24 hours immersion is only 0.28.

The exhibit of Messrs. Joseph Place & Sons, Limited, Darwen, consisted of white, colored and salt enamelled bricks. The white glazed bricks have a heavy glaze with a perfectly even surface and are in this respect specially noticeable. The colors are in great variety, every shade of color being exhibited and it is now possible to match almost any color that may be desired. The salt glazed bricks are especially noticeable because of the richness of the glaze and the uniformity of the coloring; these salt glazed bricks have now reached an excellence of quality which is seriously affecting the enamelled brick trade, and, which produce a wall having variety without shadiness as compared with the flat uniformity of enamelled bricks.

The Velvrl Company, Limited, 29 New Bridge street, London, E. C., made an exhibit of Velvrl paint which is said to contain no lead or linseed oil; it is supplied ready for use, is easy to work, quick drying, gives a smooth hard surface, is not affected by atmospheric influence, is elastic, durable, does not fade or blister, and is perfectly waterproof and non-corrosive. It is suitable for use on iron, steel, wood, cement, etc., also for all kinds of decorative work. Velvrl priming paints and varnishes are specially prepared for use with the paint. The company would be pleased to receive applications for the Canadian agency.

Major & Company, Sculcoates, Hull, exhibit the effects of their wood preserving stain "Solignum" in a most effective manner. Their stall consisted of a model half timber house in an enclosure, a railing and gate in front separating it from the gangway. All the half timber work of the house was treated with the medium and dark shades of Solignum, and looked very well, these two shades being most suitable for this class of work. To exemplify its effect as a preservative, three post ends were exhibited which had been buried in the ground for four years. The post ends untreated with Solignum shows considerable rotting, whereas those treated with one and two coats were perfectly sound. Though largely used on all kinds of woodwork in England, there is believed to be still wider scope for Solignum in the colonies and other countries where timber buildings are more in vogue and where in consequence of the severe climatic conditions wood is more liable to perish. It is being used in South Africa and Australasia in ever increasing quantities and with great satisfaction. It renders wood impervious to the attack of the white ant, and is a reliable preventative against dry rot. There should be a great future for Solignum in Canada.

Messrs. Sissons Bros. & Company, Limited, Hull, showed on a screen some charming examples of wall decoration in Hall's washable distemper in conjunction with their white Japan paint. In these schemes of decoration the colors are of the utmost delicacy and bear ample testimony to the value of the distemper as a decorative material, to say nothing of its hygienic qualities, which are of course obvious. It is perhaps necessary to say that the distemper can be had in any color.

Newell Bros., 192 Grosvenor Terrace, Camberwell, London, S. E., showed specimens of their tiles and sanitary wall linings, including the opal glass tiles for which are claimed, as specialties, super-



for thickness, permanent white backing, and ease of fixing. Mr. J. T. Newell the patentee, is one of the pioneers of the glass tile trade, and has produced the opal glass tiles as a result of long and careful study. The firm, who are contractors to H. M. Government and the principal hospitals, handle all kinds of sanitary ware and hospital fittings, and specialize on thick opal white microbe proof wall linings and slabs. Newell Bros. have a large export glass tile trade, and are selling in millions a very cheap and good glass tile.

Stanley Bros., Limited, Nuneaton, had on exhibition the following list of goods manufactured by them: Glazed bricks—brown, grey, granite, white and coloured; glazed sinks, brown and amber; glazed socket pipes and connections; terra cotta, red and buff; chimney pots—red, buff and salt glazed; roofing tiles—plain and ornamental; semi-encaustic paving tiles—plain and ornamental; red and blue ridges, finials and ventilators; blue pressed bricks, copings, garden tiles, and ventilating bricks; red, blue and buff Staffordshire quarries, glazed and unglazed malt kiln tiles; stoneware conduits, troughing, etc.

The Cloisonne Glass Co., 66 Berners St., Oxford St., London, W. The manufacture is called "Cloisonne Glass" and we cannot do better than quote the description of the inventors, and the logic of its name "Cloisonne." On a plate of glass of any texture or colour, the design is executed in thin metal strips or cloisons in precisely the same manner as in the older industry, but in the latter case a copper plate was used as the foundation upon which the strips were arranged. The design having wrought out to the required point, the cloisons are permanently cemented in place. The spaces between the cloisons are then filled in with small particles of glass of different textures or colours to carry out the design. The whole is then cemented to the transparent backing by a translucent material; a second sheet of glass is hermetically cemented over the work, and neither temperatures, nor climatic influences can affect it further. Most artistic effects are thus produced, the colours being radiant with light and valuable when seen through or when looking upon them. Portions of the glasses may be left clear and thus a beautiful contrast effected.

E. Turner & Sons, Penarth Road, Cardiff, exhibited samples of the different stones they quarry, namely, grey and blue Forest of Dean stone, Tintern Abbey stone, Farleigh bed bathstone, Corsham bed bathstone, Corngrit bed bathstone, also the red St. Bees stone, for which they are agents.

Darwen Sanitary Pipes Limited, Darwen, Lan., exhibited samples of large pipes, consisting of 36", 30" and 24" diameter sanitary tubes in 3 ft. lengths, also sample of an ordinary 18"/6" street gullies 4 ft. deep, and samples of special channel interceptors, and yard gullies. This firm make a specialty of pipes of large diameter, and their works are exceedingly well equipped for turning them out in large quantities and first-class quality, their raw material being most suitable for 21" pipes to 36" diameter.

F. McNeil & Co., Lambs Passage, Bunhill Row, London, E.C., exhibited asphaltic roofing felt for exterior roofing, bituminous or inodorous felt and sarking felt for lining slate, tile and metal roof, and for lining corrugated iron buildings.

Colledge & Bridgen, Wolverhampton, are sole licencees and manufacturers of Fisher's patent window attachment which has been designed with the object of preventing the numerous accidents frequently occurring when cleaning windows from the outside. Fisher's patent fittings are neat, easily fixed and cheap, and can be applied to new or old sashes. They allow the sashes to slide up and down in the usual way, and also to be opened into the room for cleaning and other purposes.

Messrs. B. & S. Massey, Openshaw, Manchester, exhibited an extremely useful drawing desk for the especial use of architects and other draughtsmen. The board is so constructed as to allow the user to keep in a perfectly upright position or adjust the desk to meet his own wishes. The table which is part of the outfit is constructed to hold conveniently any designs the architect may have or whatever size they may be. The whole apparatus is handy, neat looking and should be a useful adjunct to a designer's office.

The Marmorite Artistique Syndicate, Ltd., 154 and 155 Salisbury House, London Wall, E. C.—This firm's exhibit of Marmorite was much admired at the Building Trades Exhibition. The material is a splendid substitute for marble, can be made to any design and in any colour; and is specially suitable for public or

private buildings, luncheon rooms, lavatories, advertisement tablets, shop-fronts, etc.

The Crystalline Co., Ltd., The Platts, Stourbridge, exhibited snow white, opaque colored, porcelain opal, overglaze, and semi-transparent tiles—A new product manufactured from porcelain opal with a "grip" or "key" back to enable it to adhere perfectly to cement.

An effective exhibition of "Mezotil" a new and attractive mural decoration, was shown by the London Tablet Co., of Sydenham, whose proud boast it is that their product is the result of a combination exclusively English, namely, that it is made in England with English capital and by English labour. This wall covering consists of sheets of zinc of the normal size of 3 x 2 feet, enamelled and decorated in various styles, the designs hitherto employed being chiefly in imitation of tiles. As a clean, bright and inexpensive wall decoration this material deserves more than cursory attention. It is of course non-absorbent and vermin-proof.

The Permanent Decorative Glass Co., Lancaster, Manchester, and at 36 Basinghall St., London, E. C., exhibited examples of their well-known "Florite Opal" tiling and metal wall decorations, including a large variety of pattern tiles, imitation marbles, granites, ornamental borders, &c. They had also a tiled partition showing several excellent examples of their work. The advertisement of this company will be found in the British section of this paper.

Mr. W. E. Farrer, Cannon street, Birmingham, exhibited an automatic alternative distributing apparatus for small bacteria beds, such as are required for use for large public buildings, as asylums, isolation hospitals, barracks, &c. Distribution is provided for by means of an automatic tipper discharging alternately into two sets of light perforated cast-iron channels supported about 1 inch above the filtering medium. Torfit urinals, by the use of which flushing is rendered unnecessary; an improved apparatus for flushing sewers, closets, etc.; a patent lattice-gear, penstock or sewerage valve, a rust-collecting chamber for the base of sewer ventilating columns, &c.; and a selection of his sluice, air and other valves were also shown.

Messrs. Mather & Platt, Salford, exhibited a model of their automatic mechanical sewage distributor which, according to the analytical report by Inspector Leigh, gives admirable results. A model may be seen here of their patent gravity filter, which consists of a large circular iron tank, open at the top, and resting on a cast-iron chamber in which the filtered water collects before its discharge through the outlet-valve. The collecting-chamber is separated from the filtering-tank by a dished iron plate into which a large number of brass nozzles of special design are screwed, the object of which is to insure the effective use of all parts of the quartz bed during filtration, and a proper distribution of the water used for washing out. On this plate rests the quartz bed in graded layers, passing from the coarsest at the bottom to the finest at the top. The filtering-tank is fitted, at a few inches above the surface of the quartz bed, with an annular channel communicating by a number of openings with the tank, and into which open the inlet-valve for unfiltered water and the wash-out discharge valve. This annular channel affords a free outlet for the wash-out water, and is a marked improvement on any former arrangement, there being nothing whatever to impede the free discharge of the wash-out water. A third model represented the Archbutt-Deeley water-softening apparatus, all the mechanical operations in connection with which are very simple, and the labour involved light.

Messrs. Geo. Jennings, Ltd., of Lambeth, arranged a number of their well-known sanitary appliances, including some admirable specimens of fitted baths. These are shown in many forms and styles of decoration. A large variety of closets were also shown, including the "Century Syphonic," an ornamental as well as useful adjunct to which is the semi-circular porcelain flushing cistern, which advantageously replaces the old and somewhat unsightly iron tank. A new bath valve, Jennings' patent duplex attracted a good deal of attention, as by its means the water can be supplied to the bath hot, cold or blended, while all fear of scalding the bather or spoiling the enamel through the inadvertent turning on of the hot water first is obviated. The exhibits here comprised urinals, housemaid's sinks, vegetable, salad, poultry, fish, and kitchen sinks, wash-up, bed-pan and slop sinks for hospitals, and other cognate items.

Messrs. Shanks & Co., of 81 New Bond street, were represented at two stands, and showed many of their well-known make of baths



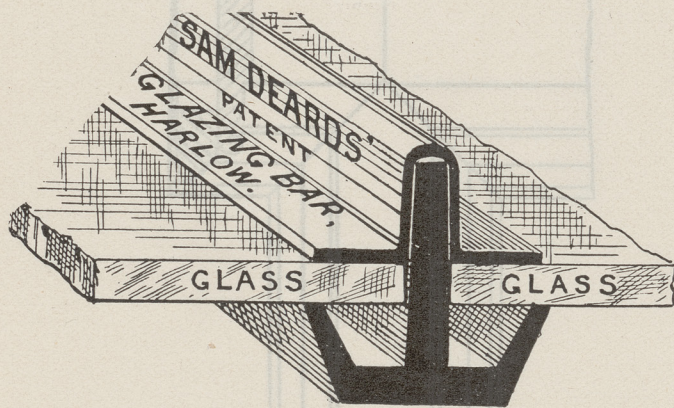
in the several varieties, as plunge, spray, canopied and tubular, in fireclay and porcelain enamelled iron; water-closets and supply cisterns, improved kitchen and scullery sinks, lavatories in vitro-porcelain and fireclay, &c.

"Velure," shown by Messrs. C. Chancellor & Co., Clerkenwell Road, is a new and perfected Japan paint, superseding varnish, with remarkable spreading, elastic and weather-resisting properties. It is sanitary and washable, and it is claimed that it will not crack, chip, peel, blister or fade. It is stocked in 120 colours and any shade can be matched. Samples of "Stripso," another specialty of this firm, were also shown. This is a paint or varnish remover which has satisfactorily withstood the tests of time and experiment, and been proved to be an efficient labour-saver.

At the stand of Messrs. Norton & Gregory, (Westminster Palace Gardens) was shown a new black-line process for the reproduction of architectural and engineering drawings, &c. The results produced by this process can only be characterized as admirable, every line being perfect and the colour not less so. Drawings can be reproduced on paper or linen as may be desired, and the reproductions can be coloured as readily as the drawings. In addition to the beautiful appearance of the prints, this process possesses a great advantage in the rapidity with which the work can be turned out as compared with other "black-line" processes. We may add that Messrs. Norton & Gregory undertake architect's perspectives, which they execute from plans and elevations.

Ripolin, Ltd., 110 Fenchurch Street, E. C., London, showed results of applications of paint to various materials. A conspicuous object at this stand was a panel delicately tinted in flat Ripolin, the effect of which was eminently artistic and pleasing. Ripolin, Ltd., are introducing a new filling, which they strongly recommend for use with Ripolin, whether glossy or flat, for which it prepares a beautifully smooth, hard surface to which the finishing coat can be applied to the great economy of the latter.

Sam Deards "Patent Glazing" for all classes of glass roofing was extensively shown at this Exhibition. We have pleasure in showing our readers an engraving of this glazing bar, for which the advantages claimed are: Its simplicity, cheapness, and durability, and best of all from a colonial point of view the possibility that it can be easily fixed by builders, plumbers, or even unskilled labor. This steel glazing bar with lead cap is made in three sections, C. E. and F., and the steel bars can either be



enamelled, galvanized or lead covered. The same can be supplied all ready for fixing, cut to any desired lengths and easily packed for shipment. Agents are wanted in Canada for this glazing, and full drawings, prices and samples will be forwarded on application to Sam Deards, Limited, 34 Old Broad street, London, E. C., or Victoria Works, Harlow, Essex. There is also a special system for glazing on wood rafters and for fire-proof roofs where no wood-work is required; all glazing bars are made "self-locking."

The Rhodes Patent Sash-Hanging Co. had an extremely interesting exhibit of a valuable invention for raising the heaviest sashes instead of the ordinary and usually inefficient smooth-grooved pulleys, worked by sash-cords, chains or wires. This invention enables the largest and heaviest of sashes to be opened and closed by a child. The fittings consist of a cog-wheel or teeth-pulley and steel chains, which are fixed to the sash and frame in the usual way. The chains are chemically treated to prevent rusting, and there are no intricate parts to get out of order.

The Warrington Bond Iron Syndicate, Ltd., of Manchester, exhibited their patent wall-tie. This is a particularly strong and effective tie, and the fact that upwards of five millions of them have been supplied, shows that it is rapidly coming into favour. There are three varieties, one for cavity work, one for solid work, and a special flat tie which may be used either for cavity or solid work.

Messrs. Candy & Co., Ltd., Newton Abbot, showed a large selection of glazed bricks of various descriptions, but of uniformly excellent quality and colour, granite vitrified paving bricks and channels, buff architectural terra-cotta, stoneware sewerage pipes, gullies, interceptors, &c.

#### NOTES.

Reports from St. John, N. B., state that never since the time of the great fire in that city has the building trade been so brisk; the supply of competent artisans is far below the demand.

The recent building strike in New York tied up \$200,000,000 of capital and occasioned a loss in profits alone of \$8,000,000 to the contractors and \$13,000,000 in wages to the workmen.

On completion of their contract for the building of the King Edward Hotel, Toronto, Messrs. Illsley & Horn, gave an informal dinner to the sub-contractors and foremen on the different departments of the works.

The police magistrate of Toronto recently imposed a sentence of ten days in jail upon two workmen convicted of having assaulted another workman with the purpose of compelling him to give up his employment. In imposing sentence the magistrate remarked: "It's no use putting a fine on these men," their union will pay it, and it will not be a sufficient deterrent."

The fire loss of the United States and Canada for the first quarter of this year was materially below the average of the same period in recent years. The records of the New York Journal of Commerce place the losses for the three months ended March 31, 1903, at \$39,164,800, or \$9,000,000 less than in the first quarter of 1902, and \$6,500,000 below the corresponding period of 1901. The March fire losses were unusually light, amounting to but \$9,907,000.

The British Vice-Consul at Lille reports that the violent campaign against the use of white lead for painting has severely affected this industry, of which Lille is the principal French centre; it is very doubtful, he adds, if white lead can be effectively replaced, various substitutes hitherto failing to give satisfaction. Largely increased importations of oxide of zinc, and introduction of a new product called "litophone," suggest that other countries, including the United Kingdom and Germany, quite as interested in sanitary questions as France, profit by the anti-white lead campaign to the detriment of the French producers.

There are three methods of curing chimneys which do not vent well, applied by Count Rumford and all smoke doctors since his time. The first is lengthening the chimney at the top, this increases the quantity of heated air in the chimney, and gives more power or head by increasing the difference between the weight of the air per foot, in and outside of it; the second is contracting the chimney at the throat; this increases the speed with which the heated air passes through it, and gives a heightened initial velocity to the smoke when beginning in its course up the chimney. The third is when there is a deficiency of air in the apartment to feed the flame and blow up the fire, putting ventilators into the sides of the apartments, or into the windows or doors.

A writer in the London Builders' Record gives the following method of removing grease spots on Watman drawing paper:—First remove as much of the grease as is possible by placing the drawing between sheets of clean blotting paper (preferably white) and ironing the spots with a moderately-hot flat iron, constantly changing the position of the blotting paper so as to expose a fresh unsoiled place and continuing this until the ironing no longer causes any discoloration. Then, if it is required to still further discharge the grease, take fresh blotting paper beneath the drawing, and, away from light or fire, pour over the spots benzine, which, as it passes through the paper, will carry the grease with it. It may be necessary to repeat the latter operation several times before complete success is attained; and be sure and get benzine (syn. benzol) as benzoline is often sold as benzine.



## INTERCOMMUNICATION.

[Communications sent to this department must be addressed to the editor with the name and address of the sender attached, not necessarily for publication. The editor does not hold himself responsible for the expressions or opinions of correspondents, but will, nevertheless, endeavor to secure correct replies to queries sent in. We do not guarantee answers to all queries neither do we undertake to answer questions in issue following their appearance.]

From "Carpenter": As you so kindly answered my query last month regarding laying out a bay window, I am encouraged to ask a few more questions on the subject. (1) What constitutes a bay window, and should it always show an octagon front? Please give me—and other readers—some pointers and instruc-

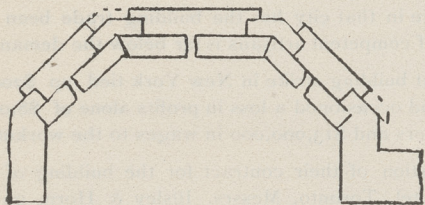


FIG. 1.

tions regarding the construction and treatment of bay windows generally.

ANSWER—Bay windows form a very important feature in "domestic architecture," as both externally and internally they are capable of a great variety of treatment.

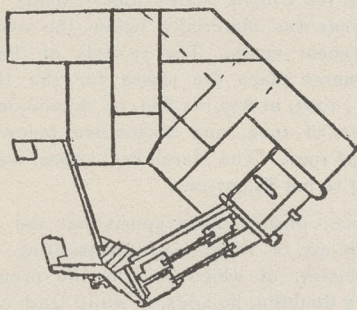


FIG. 2.

Any window which from its plan causes a distinct bay or recess in the room may be styled a bay window; but there are, it is probable, more of this class of windows, octagon in plan, than in almost any other outline, and they will be the first dealt with. Fig. 1

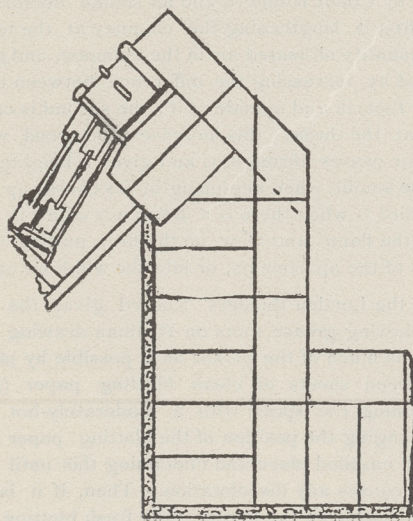


FIG. 3.

gives a skeleton outline of the plan of the piers, between which the sash-frames are placed. The sash-frames would be put in the ordinary way, although in some of the common class of houses in which bay windows

often occur the three sash frames are fastened together at the proper angles by pieces nailed upon the heads and sills (top side) of the frames so as to connect

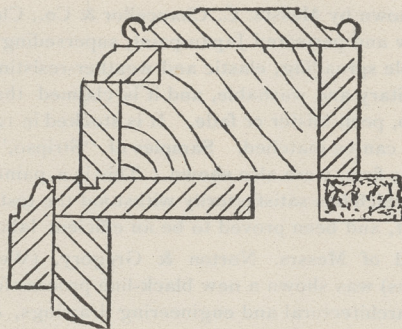


FIG. 4.

each two together, and when the under structure of the window up to the sill has been built, and three frames thus connected are set upon it, plumbed and levelled,

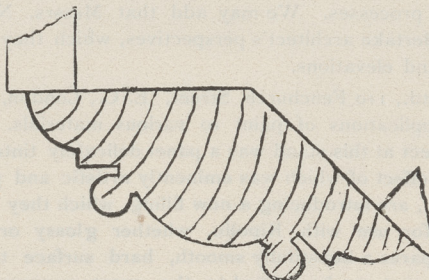


FIG. 5.

and then what forms the brick reveals just built against them; no brick-work occurring between the frames. The bay window may be carried up two stories, or as

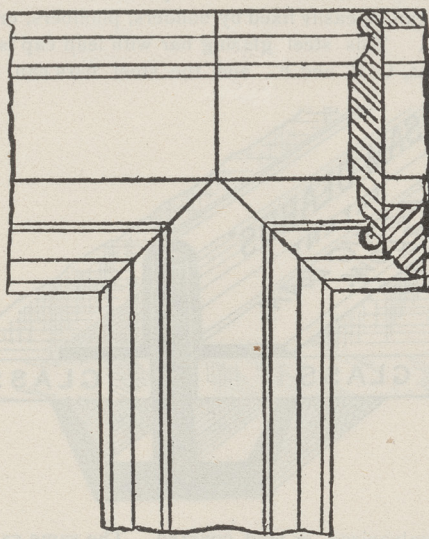


FIG. 6.

high as the house is reared, and its eave level with the house eaves, or it may be stopped at the first story, when it may be roofed against the side wall, diagonals

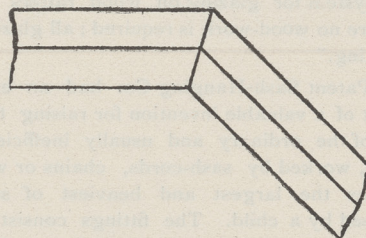


FIG. 7.

occurring at each angle, or it may be flagged and cemented so as to be water tight: or joisted, sheeted, and



leaded with a low parapet around it above this leaded floor; a pipe conducting the water from this covering to the sewer or grating provided, a little box (leaded of course), and into which the water flows, is arranged between the joisting, and it is from this box the aforesaid pipe carries off the water. It need hardly be mentioned that a slight fall should be arranged to this box in order to keep the covering of the bay window dry; pieces differing in thickness will be nailed on the top edges of the joist before the sheeting is nailed down. Thus much by way of introduction to the internal work. One more remark had better be made here. A beam, either wood or iron, reaches across the opening formed in the side-wall for the window recess or bay; the height of this varies according to the finishing of the window as compared with the room in which the window is situated, as it is not unusual to have the ceiling of the bay window level with and forming part of the ceiling of the room, the plaster cornice being carried round the bay. In other cases, again, the squareness of the room is preserved so far as the ceiling and cornice are concerned, and the beam or bressumer, referred to is shown as a distinct beam, being panelled, etc., and the ceiling or soffit of bay window being treated as a separate feature. Of course the finishing of the woodwork of the window is more particularly to be treated of here. Now it will readily be seen from Fig. 1 that the window there shown, if required to have shutters, may be treated as formed of three separate and almost independent windows, and be finished to suit. Fig. 2 gives the plan of one of the central brick or stone mullions, and shows the plan of sash-frame and shutters, also joining of architraves, which, as is seen, is by a mitre. These should be fitted and fastened together, and then set up in their places and firmly fixed. In such case the outer moulding and capping of the architrave occur on the two outer architraves only, and are carried round along the top architraves, being mitred in the angles occurring at the mullions similar to the architraves. These windows forming the bay would have backs, elbows, and soffits similar to an ordinary "full trimmed" window. Fig. 3 gives the plan of the outer jambs or piers of bay window, which will, of course, be right and left hand, but it is the right hand one which is shown. It is expected there will be no difficulty in understanding these sketches. It may be, however, that it is desirable to have lighter mullions, and no shutters, in which case a narrow jamb lining, say  $2\frac{1}{2}$  in. wide, may be substituted for the shutters; the jamb-lining will serve for provision for sun-blinds, and an architrave will form the completion of the finishing above or upon these jamb-linings, which architrave may have upon its outer edge a similar moulding to that which occurs or is wrought upon the base of the room, and of course in such case the moulding referred to will continue up the architraves of one side, and down the architraves on the other side, and along the base and round the various architraves to door-jambs or other windows in the room. This style of continuing this moulding is very fashionable with some architects nowadays. Fig. 4 gives a section of part of sash-frame, stile, jamb-lining, architrave, etc., such as has been mentioned above, and taken from an actual case in the writer's neighborhood. Fig. 5 gives the section of the moulding which was fixed so as to cover the jamb-linings of the centre mullions of the bay window.

From "Bricklayer": I have to set a boiler for a saw-mill, the boiler being a 48-inch tubular one and is 14 ft. long and I wish to know the proper way to "lay in" the fire-bricks. Is it best to put salt in the fire clay?

ANS.—Authorities say that for lining a boiler furnace use the best fire brick that can be procured, free from warp and with a sharp mould. Lay the brick as stretchers as close as possible, and breaking joints. Use pulverized fire brick which can be purchased from the fire-brick makers, or the old brick can be pulverized in a mortar or iron pot as fine as ordinary mortar sand. Sift to remove all lumps, mix to a mortar with  $\frac{1}{4}$  good fireclay and water. Use no salt or other flux, press and rub the bricks as close as possible; the least thickness of mortar joint makes the most durable lining. If there are any old headers running into the outer wall, they should be used, if in good order, or others inserted at 2 to 3 feet above the grate. The closing in at one or two courses below the lugs should be done by uncovering the top of the wall each side of the lugs, so as to make a good bearing weight on the lining wall at the top. This is much better than to wedge in the upper course.

From "Builder": In painting the woodwork of a house three coats, what proportions of paint and oil should be used to make a good job of work both inside and out?

ANS.—The first coat of paint for inside work should consist of sufficient white lead, mixed thoroughly with equal parts of boiled linseed oil and spirits of turpentine; second coat, one part linseed oil and three parts turpentine; third coat, mostly turpentine, with sufficient linseed oil to hold the color. Inside paint should be well exposed to light. No dryer is required with the paints here recommended.

From "Contractor": I see a new substance called Lignolite advertised in English papers, which is said to be excellent for floors; will you kindly state of what it is composed?

ANS.—Lignolite is an invention of a German chemist and is made by mixing sawdust with some chemical, the nature of which is not divulged, it can be used for floor surfaces and similar purposes. It can be spread in a moist condition, similarly to mortar, and is said to harden in 48 hours. It is claimed for this material that it is noiseless, impervious to water, incombustible and very light.

From "Plumber": I would like to know if sanitary science demands a fresh air vent and trap in a main house sewer; if so, what is the advantage? When the main house drain is properly vented through the roof can this trap and fresh air vent be dispensed with?

ANS.—A trap on a house drain between the house and the common sewer is an absolute necessity; and the best kind of trap is none too good, if health depends upon it. A trap with an air vent can do no harm, and it has several important advantages. The first is, as the air vent is placed on the house side of the trap, it gives any gases from the sewer, that force the seal of the trap, a means of escape without entering the house—and second, by the admission of fresh air, at the grade level, into the house drain, and by the heating of that air in the house pipes, which are supposed to be properly vented through the roof, a



circulation is established, which will carry off as formed any gases or odor from the pipes. The fresh air pipe is often omitted from business blocks, owing to the difficulty in obtaining a suitable place for it at the grade level; but as these places are only occupied during the day, and there is more or less coming and going, it is not necessary as in the case of dwellings.

### SOMETHING ON COLOR DECORATION.

By F. T. H.

The most valuable colors for decorative purposes, are the ochres, which vary from a bright, though not vivid, yellow, to a color nearly approaching a tawny brown.\* The best ochre produces quiet tints in white and other colors, including a valuable green when combined with Prussian and other blue. In combination with vermillion, Indian and Venetian red, it produces refined and quiet colors of great value. Most useful reds are light red, Indian and Venetian red; these may be enlightened to any degree with vermillion. The three reds produce good ground colors when mixed with white, white and yellow ochre, or white and black. Lake and vermillion produce a rich crimson. Of all blue pigments, blue ochre is the most permanent, and Prussian blue the most useful. Blue, combined with white, is of the utmost value in preparing permanent greens, and produce pleasant tones. Cobalt blue is highly commended for preparation of clear, bright, blues. The finest small blue is durable and useful, being unaffected by lime. As a general rule, blues with a slightly greenish tint are more pleasant in decoration than those which incline to purple. Greens for decoration should, as a rule, be mixed with pigments. The ordinary greens of commerce cannot be depended upon. Bright and shining greens should be sparingly introduced, being too hard and forcible, but all tones of suitable green may be found in autumnal foliage. Such greens are readily produced with Prussian blue and cobalt blue, and permanent yellow with the ochres, lemon yellow, and raw and burnt sienna. To compounds of these may be added Indian and Venetian reds, Vandyke brown and burnt umber. All greens may be brightened with bright and lemon yellow. Lake, vermillion, Venetian, and Indian red are to be valued for the bright intensity of their colors. All colors of a decidedly neutral character prove tame and ineffective. Beads and chamfers in gold and black are always appropriate and telling in effect on panels. Lines of light or full colors should be sparingly used on borders, finials and crockets in flat panelling. In the painting of mediaeval times it is noticeable that pure colors are rare; these are most generally toned, and with admirable effect. The absence of the primaries is a rebuke to the writers on theory colors, who lay down the proportions in which they should appear, in a way to indicate that the presence of such colors is indispensable to rich decoration.

The toning of colors is a very simple matter, but it requires system. The adoption of combination changes colors. Where the form of pattern undergoes repetition in stenciled ceilings, the band is the most satisfactory, as it helps to remove, in a considerable degree, the unavoidable hardness of such bands, and a quiet effect will be secured by bringing the counterchanged colors close to one another in intensity.

A good ground for dark oak is made of pure white lead, golden ochre and royal red. Deep orange chrome is sometimes used when a bright tone is desired. The graining color is made of burnt sienna, raw sienna and Vandyke brown.

Slightly tinted green glass is introduced by decorators in certain rooms having abundant light, as grateful to the sight and having a subduing influence on the decoration.

It is well to remember in all cases, that cool tones and colors are always to be relied on, and are less subject to criticism than any others, and nothing is more calculated to mar architectural beauty and effect of light and shade, and the general proportion of any structure as the adoption of the wrong color, detailed by others inappropriate, that is, the employment of colors with glaring and raw tones, either reduce or bring into prominence those parts which the architect in designing intended should have the opposite effect.

### BUILDING CONDITIONS IN SOUTH AFRICA.

The greatest building activity in the history of the City of Johannesburg is reported to be now in evidence. The majority of dwellings are now being built of stone and brick instead of wood as formerly. Bricks, lime, cement and certain other lines of building materials are reported to be in good demand. The following were the ruling prices of materials in April, as reported by "The South African Mines, Commerce and Industries," Johannesburg.

Portland cement, per cask.....	36s. to 37s.
Lime, per bag.....	5s. 6d. to 5s.
Bricks,* slop (burnt).....	50s. to 55s.
" common.....	55s. to 60s.
" stock.....	60s. to 70s.
" facing.....	£6 10s. to £8
" pressed.....	£13 to £14 10s.
" unburnt.....	25s. to 30s.
Deals, 17 in. and under.....	10½d. to 11d.
" 18 in. and 19 in. ....	11d. to 11½d.
" 20 in. and over.....	11½d. to 1s.
Oregon logs, 6 x 6, per cub. ft. ....	5s.
" 12 x 12, long lengths, per cub. ft. ....	5s.
Ceiling.....	3d.
Flooring.....	4½
Windows, 8 x 10.....	32s. 6d.
" 10 x 12.....	37s. 6d.
" 15 x 30.....	40s. 6d.
" 18 x 36.....	50s.
Doors, 2 ft. 6 in. x 6 ft. 6 in. x 1¼ in. ....	13s. 6d.
" 2 ft. 6 in. x 6 ft. 6 in. x 1½ in. ....	14s. 6d.
" 2 ft. 6 in. x 6 ft. 8 in. x 1½ in. ....	16s.
Galvanized iron, 6 ft. to 10 ft. per ft. ....	7½d.
Shelving, 1x12, D 2 s, per ft. ....	6d.
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" 1½ in. ....	2d.
" 1 in. ....	1½d.
Fret-cut fascia, 6 in. ....	1s.
" 7 in. ....	1s. 1½d.

\*These prices are for 1,000 at kiln, and delivery to buildings in town 15s. per 1,000 extra.

The Master Builders' Association of London, England, have entered into an agreement with the trades unions which provides: "All workmen who are in receipt of full wages and who have been employed for not less than forty-two hours shall, on discharge, receive one hour's notice, to be occupied so far as is practicable in grinding tools, with one hour's pay in addition." The rule was made with the object of minimizing the opportunities for strikes and disturbances.



## ON ARCHITECTURAL NOMENCLATURE.

Lovers of architecture should be glad that their love is not one of the "ologies," and is practically free from those Greek and Latin compounds which it seems to be the delight of scientists to introduce into the English language, says a writer in *Building News*. Though architecture is essentially a Greek word (as it is fitting it should be), it does not suggest the "specialist" which clings to the "ologies," and if we examine the architectural vocabulary, it is surprising how simple and elementary very many of the terms are. It is very pleasing, too, when we examine the relation between each feature and its architectural name to find that we can trace its origin, nature, and purpose through that name.

If such a vocabulary is made out, a very great number of the most common terms used in building will be found to be borrowed from natural forms, especially those of animals, and the physical system of the animal kingdom finds its counter-part in architecture.

Thus the very terms of the art show the noble principles on which the true forms of it is developed—they show both the laws by which a building stands, and the canons by which it is decorated. If the terms are belied or violated, their meanings, which remain, at once point out the barbarisms, and show up the falsehoods. Just as when we call a spade a spade, and someone chooses to call it a pitchfork, nobody is deceived who has any idea of what a spade really is.

Firstly, as to the laws of building in a universal sense. Starting with the solid foundation, the footings spread out to receive the walls, with their face and back. The wall is capped by the coping (Dutch cop = head), and where columns exist they have their capital (Latin caput = head). Further, the walls undergo the process of toothing. The vaults are completed with ribs, haunches, and crown; the roof has its hips, the rafters their heels. The window sills are throated. The very building, finally, has its wings. (It is interesting to note that the epithet of "wingless" applied to the little temple on the Athenian Acropolis is now understood by some to refer to the building itself and not to "Victory"—a theory which gains in probability on remembering the Eretheion in close proximity, which has so many wings).

Leaving the general structure of the skeleton of the building, we find among moulding such characteristic terms as swan's neck, bird's beak, dog-tooth, and also the wave moulding.

The last is especially pleasing as it is almost the solitary expression in architecture of the ocean. While it is true that flowers or foliage afford the quintessence of architectural ornamentation\*, the sea contains such varied and grand forms and waves, that a "style" developed from wavecrests and ripples would be almost as fascinating and as equally magnificent as the most elaborate system of tracery or carving, with "foil", leaf, or "lobe" as a basis. The "wave-tracery" (suggested, no doubt, in the Flamboyant curves, but there literally developed from flames) is really a phase of Gothic yet to be developed and admired. Something far different, please, from Greek Fret or guilloche spirals, of which Ruskin wrote scornfully by pointing out that "into which the great Greek architect trans-

forms the sea." But conceive how a wave would cast itself around a huge bell capital, and fall in dripping foam down the shaft! It is surprising that in such a water-city as Venice, with all the wealth and dexterity of Byzantine marble work on capitals and mouldings, no expression of their waterways and lagoons is conceived. The Japanese might do it, as surely they have yet to develop a style of architecture in which the peculiar qualities of Japanese art can exert their influence. The spirit of waves, as above suggested, is found very strongly expressed in the colour-print of Hiroshige and other artists. Perhaps few people have such a vivid way of catching the extract conventional forms of striking natural features. The same remarks might be applied to cloud forms.

Curiously enough, the parts of a ship do find their way into our architectural vocabulary. The keel moulding is characteristic, and there is cabling. On some American plans we lately noticed the delightful use of the word deck for a kind of verandah, and possibly cabin and saloon were originally taken from the ship. As there is no nobler art than shipbuilding, it is appropriate that its influence should be felt in architecture. The anchor is used in decoration, and Venetian masts will soon be adding to the gaiety of our street architecture.

In Greek architecture, if we may examine the original terms, we find the same association with life. The frieze was "life-bearing," and can anyone conceive a frieze more justified in bearing such a title than that of the Parthenon? Look, too, at the Caryatides, or "the women of Caryæ," supporting their eternal burdens of portico or roof. In the cornice we get the corona or crown. It is not quite clear why the pediment (i. e., foot) should be so called unless the idea was mixed up with that of the pyramidal form of a tripod acting as a foot. Then, again, there is the Greek moulding astragal, from one of the vertebræ of the neck.

Leaving architecture strictly, in carpentry and joinery the same nature of words holds good—witness dovetail (the French "swallowtail"), foxtail, herringbone, and tusk tenon.

We have by no means exhausted the list, and may mention bird's-mouth, bull-nose, feather-edged, tongue, dog-legged stairs. And, in conclusion, we may remind the weary reader of those delightful "heavenly twins" who put forth "flying buttresses" as signs of bad weather.

## AMERICAN LEAGUE FOR CIVIC IMPROVEMENTS.

The annual convention of the American League for Civic Improvement was held at Chautauqua, N. Y., July 13th to 18th, and the Ontario Association of Architects was represented by Mr. Wm. R. Gregg. There were conferences upon Rural, Village, City and National Improvement, at which representatives from many localities spoke, reporting a most encouraging year's work. Lectures were given by Mr. Clinton Rogers Woodruff upon "Municipal Progress," Mr. W. R. Eastman upon "Library buildings," Mr. Albert Kelsey upon "The Model City" and Mr. J. Horace McFarland upon "The Harrisburg Plan." Also two series of lectures were delivered, one by Prof. Chas. Zueblin on Contemporary Society and the other by Mr. John Quincy Adams on Art.

Mr. J. Horace McFarland was re-elected President and Mr. E. G. Routzchen is Secretary. An annual dinner and an afternoon's excursion on the lake contributed to the enjoyment of the delegates. The next annual meeting will be at St. Louis.

The Canadian League for Civic Improvement which was formed lately in Toronto is a similar organization.

## CORRECTION.

We regret that a mistake occurred in the advertisement of the Henry Richards Tile Company appearing in the *British Supplement* in our May and June issues. The name connected with the Company's Sanitary Works should have been printed Edward Johns & Company, not Edward Jones & Company.

\*In flower tracery we get the rose window. Ruskin has suggested a series of tracery devoted to every variety of flower, just as the Japanese, in their exquisite, natural flower decoration, devote one room to one flower.



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**ADVERTISEMENTS.**

Prices for advertisements sent promptly on application. Orders for advertisements should reach the office of publication not later than the 12th, and change of advertisements not later than the 5th day of the month.

**EDITOR'S ANNOUNCEMENTS.**

Contributions of value to the persons in whose interest this journal is published are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

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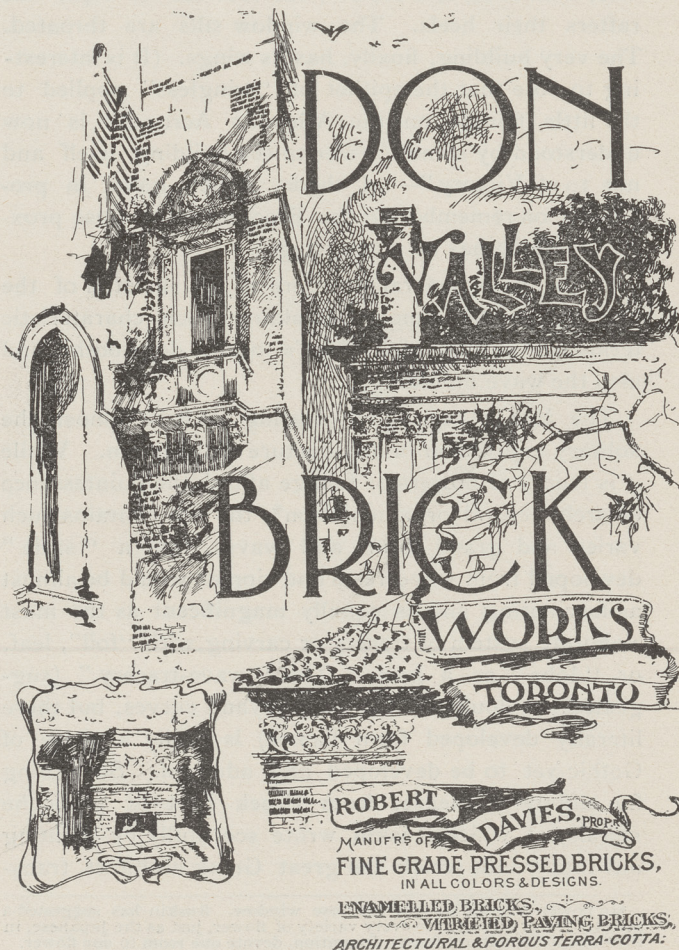
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**NOTES.**

In the building of the City Hall of Philadelphia, a portion of the brickwork of the tower was laid up with cement mortar and another portion was laid in lime mortar. The work was faced with marble. As a result, wherever the marble facing was backed with brick in lime mortar, the marble facing crushed and spalled and had to be cut away and refaced. Wherever cement mortar had been used no harm came to the marble facing.





## THE BUILDING STRIKE IN TORONTO.

The strike of the carpenters and builders' laborers inaugurated in Toronto more than two months ago has failed. The contractors offered the carpenters 32½ cents per hour, or within 2½ cents of their demand, an increase of 10 cents per hour above the wages they were receiving two years ago. This offer was refused and the resulting deadlock has continued ever since. The builders' laborers demanded 30 cents per hour and went out on strike rather than accept the contractors' offer of 27 cents. On several occasions recently the strikers sought conferences with the Builders' Exchange but were told that the employers had made their best and final proposition. In his last letter written but a few days ago, the Secretary of the Exchange intimated that that body had withdrawn its Committee and positively declined further negotiations. This brought matters to a climax, and the strike of the carpenters and laborers was declared off. The early termination of the painters' strike may now be looked for. On excellent authority it is learned that five hundred men are now at work in this trade, and that of this number about 460 are receiving 30 cents or less per hour. Under these circumstances there is not the ghost of a chance for the strikers to succeed in their demand for 35 cents per hour.

## NOTES.

The master plumbers of Sydney, Nova Scotia, have recently formed an association.

Mr. W. J. Burroughes, formerly a well-known Toronto plumber, now of London, Eng., is at present on a visit to Canada.

Robert Snarr, a prominent contractor, of Toronto, died at his home in that city last month, aged 51 years. Among the important structures erected by him were the Home Life Building, McMaster University and the Mercer Reformatory.

The Trade Papers Publishing Co., High Holborn, London, Eng., has published Part I of a work by J. Petrie devoted to an explanation of the methods to be adopted for graining and marbling. The work which is to be published in fourteen parts, is illustrated by colored plates with explanatory notes.

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## A DISCOVERY IN BRICK MAKING.

Mr. D. J. Acheson, of Niagara Falls, N. Y., claims to have discovered why the Egyptians used straw in the manufacture of their bricks. According to Mr. Acheson, it was not alone as a binding material, but because the tannin extracted by the soaking of the straw in water added greatly to the strength of the bricks. By treating clay with an extract of straw Mr. Acheson has shown a 50% increase in tensile strength and an increase of plasticity, with a decrease of shrinkage.

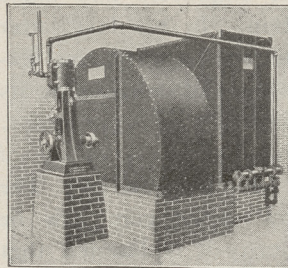
The clay is worked with water in which straw has been boiled. So little as one-half of 1 per cent. of tannin is said to develop a wonderful effect, the clay requiring 13 per cent. less water to make it soft. The maximum effect of the process and treatment, however, seems to be obtained by the use of 2 per cent. of tannin in a ten-day treatment. The treatment is merely keeping the clay wet with water in which tannin is dissolved, which can be done in vats.

Besides the above-mentioned 50 per cent. increase of strength in the burnt form, the clay in the sun-dried form acquires an increase of 350 per cent. in tensile strength.

As a result of this discovery Mr. Acheson has patented a combination of clay and tannin under the name of "Egyptianized clay."

## AN OPPORTUNITY TO BE IMPROVED.

The meeting in Montreal next month of representatives of the leading Chambers of Commerce of Great Britain should prove an event of great importance to Canada. No effort should be spared to afford these representative business men of Great Britain opportunity to see every part of this Great Dominion, and judge for themselves of its resources and trade possibilities. The subject of preferential trade within the empire, now the leading topic in political and commercial circles throughout Great Britain, will doubtless constitute one of the leading subjects of discussion at the Montreal Conference.



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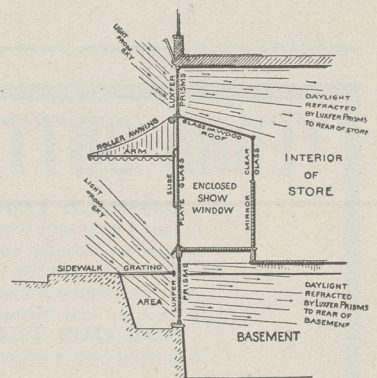


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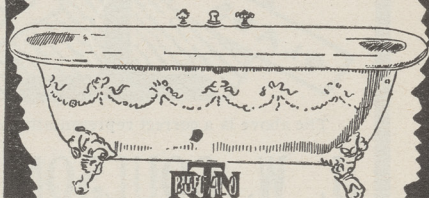
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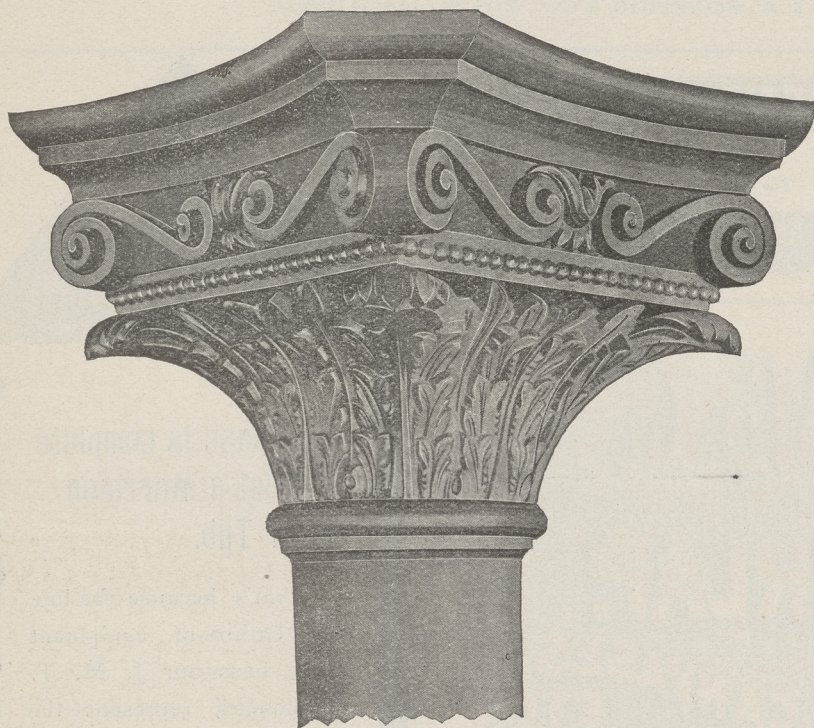
The Samuel Cabot Co., of Boston, have recently issued a pamphlet, containing the report of Prof. Charles D. Norton, of Massachusetts Institute of Technology, on the tests for sound-proofing the dormitories of the New England Conservatory of Music. This book has been gotten up in a very neat form, and contains valuable data regarding the advantage of using sheathing and deafening quilt for sound deadening.

Interlocking Rubber Tiling is gaining greatly in popular favor, principally because of its usefulness, from a sanitary and noiseless standpoint. Many handsome designs in this line have been recently introduced by Canadian manufacturers. Among these the Dunlop Tire Co. figure prominently. Some time ago they added this feature to their business and have been remarkably successful in their efforts to impress the public with the good qualities of rubber tiling.

The engineers of the Canada Paint Company are now engaged in drawing up plans for their extension on Hunter street. The gratifying increase of business which has come to this company necessitates larger premises than those occupied at present. The Canada Paint Company has purchased a tract of land on Hunter street, bounded by Chatham street and Notre Dame lane, which has the merit of being central and close to their present extensive plant upon William street, Montreal. The Canada Paint Company employ their own engineers, carpenters and machinists, and the new works will be erected by their permanent staff and will be the most complete yet devised upon this continent. It may not be generally known that the Canada Paint Company, Limited, is by far the largest paint and varnish manufacturing company in the Dominion of Canada, and the only company in Canada who ship large quantities of painting material to the United States, in spite of the high tariff which our American friends have against us. Shipments are also made to Great Britain and to the Australian Colonies.

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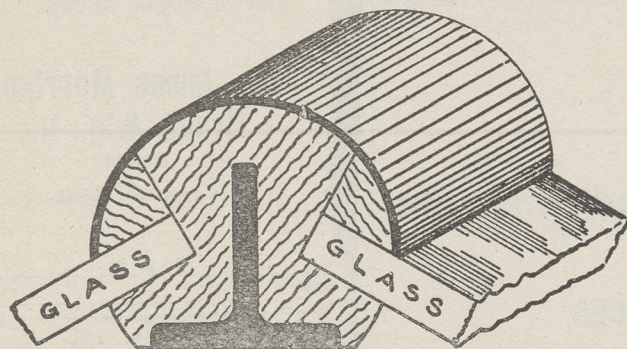
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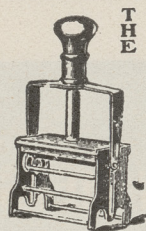
**Columbus, Ohio.**



## NOTES.

Experiments on the effect of double glazing for windows seem to prove that the best results are obtained when the distance between the sheets of glass is from  $2\frac{3}{4}$  to  $4\frac{1}{2}$  inches.

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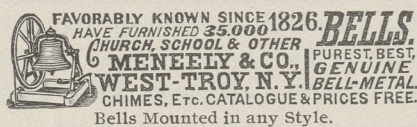
The third edition of the Canadian Contractor's Hand-Book has been published and is now on sale. The book has been revised and enlarged to upwards of two hundred pages, and the title changed to the Canadian Contractor's Hand-Book and Estimator, considerable matter bearing upon the cost of performing various kinds of work having been added.

The price of the third edition, mailed free, is \$1.00 to subscribers of the CANADIAN ARCHITECT AND BUILDER, and \$1.50 to non-subscribers. Order from the publishers,

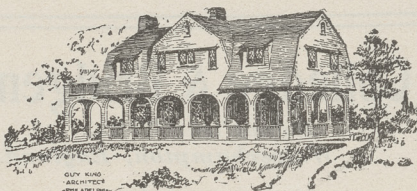
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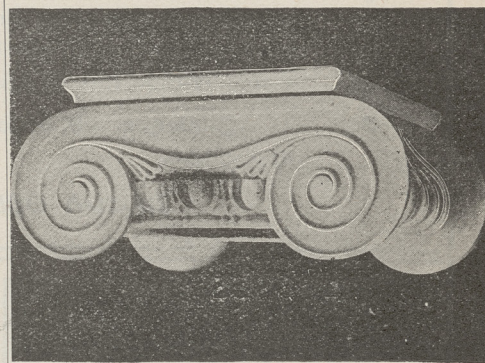
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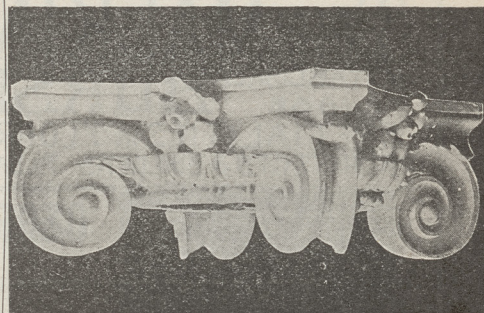
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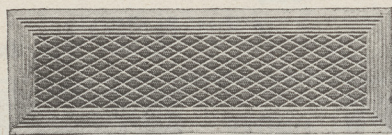
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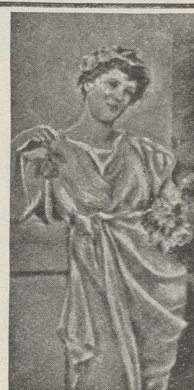
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